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DECEMBER 28, 1950

Aluminum sheet (8 x 11½-in. disk) is made ready for use by United Nuclear building boy in 300

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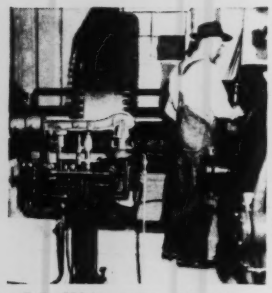
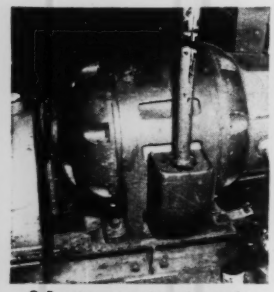
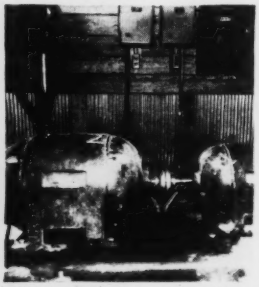


G-E 500-hp motor drives two 3000 cu. ft. Ingersoll Rand air compressors

Synchronous motor starter and control for air compressors



G-E motor-generator set operates frequency converters that run vibrators



200 hp G-E motor operates the hoisting mechanism of the American Revolver Crane

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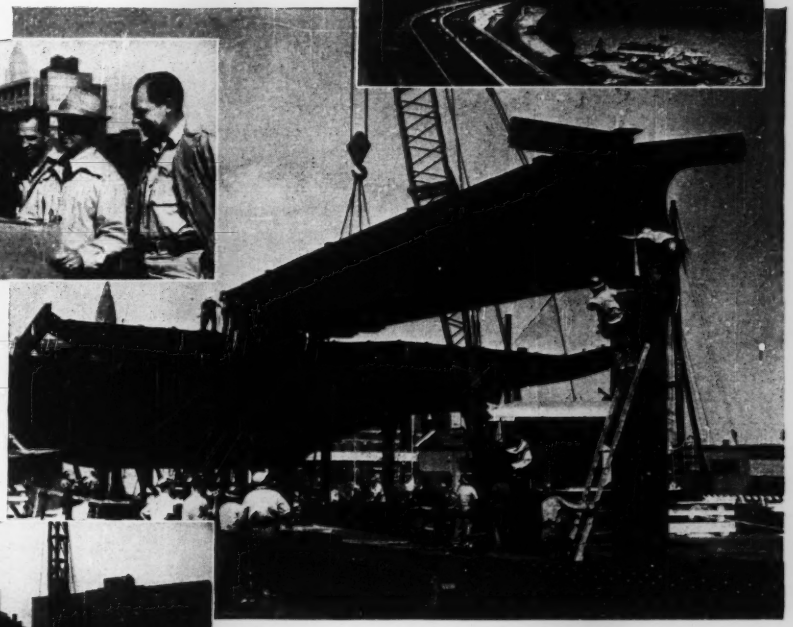
New Elevated Highway
IN MANHATTAN

Looking over the day's work. Left to right: J. Kinney, superintendent, and J. Tiernan, vice-president, P. T. Cox Construction Co., Inc.; W. Lewis, assistant superintendent, E. Happ, assistant section engineer, J. Mancini, section engineer, and G. Tuscher, inspector, all for City of New York.



↑Easy does it! Bethlehem girder goes into place on north ramp. Heaviest girder on job weighed 90 tons. (At top) Air view, looking north, showing cars on completed roadway. Elevated portion of Franklin D. Roosevelt Drive is 2717 ft long. Skyscrapers of midtown New York visible in distance.

Cars roll on old highway as Bethlehem H-piles are driven to bed rock. Part of Stuyvesant Town and Peter Cooper Village in background.

Construction of Stuyvesant Town and Peter Cooper Village, gigantic housing developments adjacent to the East River in downtown Manhattan, posed a serious traffic problem. To enable pedestrians to reach the river front in safety, as well as to provide a non-stop route for motorists using the Franklin D. Roosevelt Drive, the city recently authorized elevation of this heavily-traveled thoroughfare from 15th St. to 25th St. Construction of the four-lane elevated highway was handled by P. T. Cox Construction Co., Inc., and P. J. Carlin Construction Co., both of New York. Bethlehem fabricated and erected the structure, and also furnished H-piles and reinforcing bars.

Finished roadway starts to take shape as initial layer of concrete is poured over heavy concentration of Bethlehem Reinforcing Bars.

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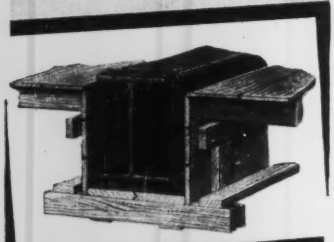

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ENGINEERING NEWS-RECORD

VOLUME 143 DECEMBER 29, 1949 NO. 26

WALDO G. BOWMAN
Editor

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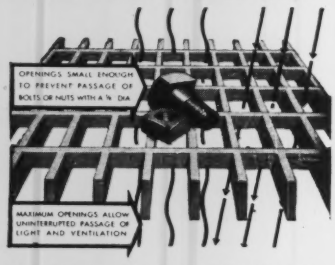
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NEWS BRIEFS

Ours Won't—British Columbia's highways will be free of commercial advertising signs within three years, according to Provincial Works Minister E. C. Carson. One-third of them have been removed over the last two years, under a program which has cost $14,000 so far.

Safe Place to Work—Corps of Engineers' Denver District has received commendation upon a record of four years' major construction without a fatal accident. The commendation came from Brig. Gen. S. D. Sturgis, Jr., Missouri River Division Engineer. A plaque, covering the year 1948, also was presented, honoring 1,898,332 manhours worked with only 12 minor disabling injuries.

Large Vote Not Wanted—Missouri will have a special election April 14 to pass on Gov. Forrest Smith's 4-cent gasoline tax proposal. A party-line vote in the Senate ok'd a House resolution to this effect. Administration leaders wanted the early date to keep the proposal off the general election ballot.

Nothing Overlooked—Ohio's Highway Director T. J. Kauer assures everyone that the state won't lose any federal-aid road funds by default. The state will have $90,000,000 of road work under contract by the end of 1950, he said in reply to fears expressed with the disclosure that so far, only 18 percent of its postwar federal-aid money for roads has been spent.

Procedure Reversed—Mostly, it's truckers who take business away from the railroads, but not always. More than a quarter of a million tons of material for Detroit and Big Cliff dams, on the Santiam River in western Oregon, will go to the damsite by rail instead of truck. Highway officials feared the steady, heavy traffic would destroy existing roads.

Coals to Newcastle Note—Construction men on Sable Island, off Nova Scotia, are becoming convinced their local sand isn't so bad, after all. Heretofore, sand for concrete has been imported from the mainland to this all-sand island 30 mi. long. But experiments indicate Sable sand stands up better against the continuous salt and sand-laden winds than does mainland sand.

Hollywood Stuff—Pennsylvania's happy enough about its clean streams program to put the show on the road. Its Sanitary Water Board is ready to sign a contract for two motion pictures dramatizing the job—one a 25-minute sound and color film telling the whole story, the other a 10-minute "highlight" film for state and national movie house distribution. Cost: More than $65,000. Release date: Next fall.

Courts are for That—North Carolina's Tile Contractors Licensing Board wants the state supreme court to uphold its right to make tile layers obtain state licenses. It's appealing a lower court rule that such a requirement deprives workers of constitutional rights and sets up a monopoly for those licensed.

Giddyap, Napoleon—Lancaster County farmers are using the eastern extension of Pennsylvania's Turnpike, even though its opening date is almost a full year off. A four-lane stretch near Denver is the scene of impromptu Sunday afternoon sulky races which attract sizeable crowds and even a few wagers. Meanwhile, excellent fall weather allowed contractors to move 44 days ahead of schedule on the road. The largest single contract—for a Susquehanna River bridge—lost a month because of the steel strike, but it was six months ahead when that happened.

Contractors Don't Like It—Proposals by Pima County, Arizona, authorities to undertake a major paving program by force account have brought protests from the state's chapter of the Associated General Contractors. County Engineer Bruce Ellis says the county can halve the cost estimates of $2,000 per mile.

Big Muddy Bridge—Northern Pacific railway has asked Army permission to erect a $3,500,000 bridge across the Missouri River at Bismarck, N. D. Its main purpose would be to straighten the line and eliminate two sharp curves just east and west of the stream.

What's Original Cost?—Quebec's Hydro-Electric Commission will pay the province $20,000,000 for water power assets and development rights in northwestern Quebec. It will get a 48,000 hp. plant at Rapid No. 7, a dam and reservoir at Lake Dozois and development rights at Rapid No. 1, all on the upper Ottawa River.

Force Account Job?—North Carolina's Highway Commission wants the state budget bureau to allocate $1,500,000 for a new commission office building, at Raleigh.

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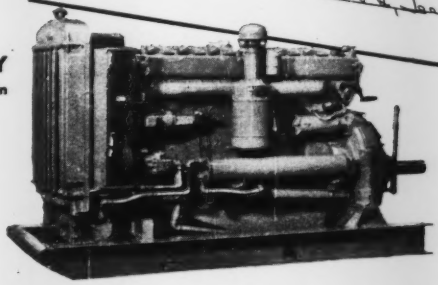

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THE CONSTRUCTION WEEK

MORE ROADS PER DOLLAR—Like any other state, Pennsylvania has been hit by postwar construction costs increases. But its highway department may have offset a large part of them. Highways Secretary Ray Smock told Associated Pennsylvania Constructors last week that the four-year administration of Gov. James Duff will see about 65 percent of all highway expenditures for construction accounts. The average during the previous 16 years, he said, was 47 percent of all expenditures. The difference—about $100 million—might be considered an offset against the higher cost per mile which has prevailed since the war.

BUT GOVERNOR!—Gov. Thomas E. Dewey had New York City's water supply engineers mystified last week with a statement he made on the current water shortage. He told the City that it had an additional supply of 500 mgd. readily available—300 mgd. from the Hudson River and 200 mgd. from Rondout Creek. Actually, Shaft 6 of the Delaware Aqueduct, which is to take the emergency Hudson River water, is large enough to pass only 100 mgd. And, Rondout Creek is already being diverted—has been since 1944—averaging near 100 mgd.

FLY ASH ON THE LEVEE—With the approval of the Army Engineers, the Union Electric Co. of St. Louis is now collecting 600 tons of fly ash daily—for use in building levees. The ash is collected from the company's steam plants at Venice and Cahokia, mixed with water and fed into a pond where it is allowed to settle out behind a toe-wall. In six months, the company expects to bring its levees up to the prescribed 15-ft. height.

JOLT—Cities, searching frantically for new revenue sources, got a rude jolt from C. Emory Glander, Ohio tax commissioner. Urging that the municipalities go easy on adopting local income taxes as new revenue sources, Glander told the American Municipal Association that such action would cause him to recommend a statewide income tax. The kicker: Only about 50 percent of this revenue would be returned to the cities.

CONSTRUCTION BUSINESS INDICATOR?—If Pennsylvania's plans are indicative, the construction boom has a big year coming up in 1950—in highways, at least. The state figures on spending $80,000,000 next year from its motor fund. Add $40,000,000, which is to be available from a bond issue by the state's Highway and Toll Bridge Authority—all of it to be let to contract in 1950. There's $14,000,000 of federal-aid funds to go in, too. And the Pennsylvania Turnpike Commission expects to spend $66,000,000. That makes $200 million in roads in Pennsylvania next year.

JOBLESS BENEFITS UP?—President Truman figures it's time for a new—and upward—look in unemployment compensation benefits. This means Congress will have yet another labor issue before it next year. Minimum wages have been upped from 40 to 75 cents, and an expanded social security benefit schedule is halfway through Congress. Main complaints against existing schedules (which average $20 weekly) are that they don't pay enough; that they don't go to enough people; and that they don't continue long enough. Most state benefits are in good shape now—but a boost in benefits ultimately will mean a boost in the payroll taxes, whence come the funds.

CLUE—Indication of what type of projects will get top consideration from Housing and Home Finance Agency under the 1949 housing act was contained in a statement issued by Raymond Foley, administrator. Said Foley: The type of re-use made of slum-cleared areas is most important. . . . Not only must the re-use be so planned as to prevent recurrence of slum conditions, but it should fit into long-range plans.

NIAGARA POWER—The complicated task of rewriting the 1909 apportionment of Niagara water will start in earnest next year. And both Canadian and U. S. negotiators strive for the same thing: More power from more water diversion. Exploratory talks in Washington seem to augur progress on two main points—a 50-50 sharing of water diverted for power (Canada gets more than U. S. under the existing agreement); and the belief that more water can be taken without endangering the beauty of Niagara Falls.

ANOTHER TVA STEAM PLANT—Only a few months after it received Congressional approval (after a bitter fight) for its New Johnsonville, Tenn., steam plant, TVA now has announced plans for a second thermal plant. The new one—a $37,000,000, 250,000 kw. unit—is planned for Widow's Creek, Ala. on the banks of TVA's Guntersville Reservoir, 29 miles southwest of Chattanooga, Tenn. The new plant is designed to help TVA meet the growing demand for power from the Oak Ridge atom factories, and from the Air Forces' new air engineering development center near Tullahoma, Tenn. (ENR Nov. 17, p. 25).

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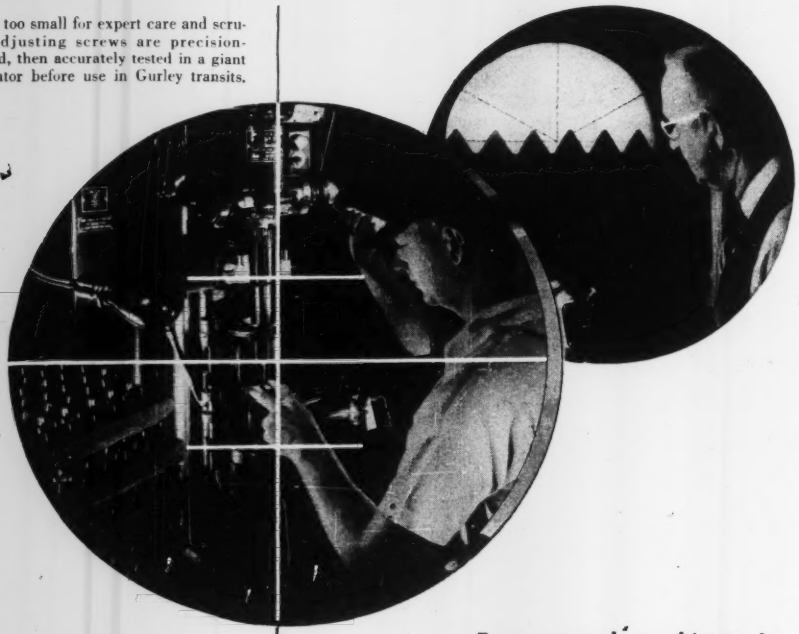

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CONSTRUCTION TRENDS

LOOKING AHEAD IN 1950

What's ahead for business in 1950?

What happens to general business, of course, shapes prospects for an important part of the construction industry—notably industrial and commercial building and homebuilding. These parts of the industry are particularly sensitive to changes in general business.

As it looks today, the general business outlook comes down to this: Prospects are very good that the U. S. will have continuing prosperity—at least through the first half of the year. The outlook for the second half depends heavily on events that cannot be predicted now, but 1950 seems certain to be another good year.

Here's how the outlook adds up:

Let's look first at the key capital goods field. Business is continuing to taper off spending for new plants and equipment. A full report on the outlook here will come in a few weeks when a McGraw-Hill survey of business plans to buy new plants and equipment is released. Meanwhile, a joint survey by the Securities and Exchange Commission and the Department of Commerce shows that capital expenditures in the first quarter of 1950 may be as much as 15% below the 1949 level. That is likely to be close to the bottom for the year. But—in any case—it indicates that contract awards for industrial building are not likely to turn up in the months ahead.

What could offset this drop in capital expenditures—which traditionally have been a business mainstay?

Two things are in sight. First is the $2.8 billion dividend on World War II insurance being paid to veterans. It will give retail trade a shot-in-the-arm and help keep the appliance, furniture, automobile and other consumer goods lines going at a high level. The second offset comes in the high tide of government spending. The increase of almost $1 billion expected in public construction next year, for example, is counted on to offset a decline in private work and keep construction as a whole on an even keel. Construction will feel the lift of the government program pretty well through the year. In other fields, however, it is expected to reach a peak in the first six months.

In addition, the key automobile and steel industries are likely to be running in high until well into the spring, catching up on production lost in the steel strike this fall. All this—plus the prospect of a high level of employment and a steady flow of income to consumers—is expected to keep business at a high level through the first half of the year.

The picture for the second half of the year, however, is not so clear. By mid-summer, the special lift from the G.I. dividend will be largely gone. Government spending is expected to be level, or perhaps falling slightly. Capital expenditures, too, will be running below this year's level, as things look now. All this could mean a tapering off of general business. But—there can be new things coming along to pick up business again. A steady rise in the stock market, making it easier for companies to finance new plants and equipment, might help. A cut in taxes, too, might be enough to prevent a dip late in the year.

In short, business goes into the New Year with confidence. Even with the questions about the second half, 1950 promises to be another very good year.

The construction industry's prospects are strong, too. With the impetus it will get from the growing volume of public works—and with continuing good general business—the industry may well expect another year close to 1949's record-breaking volume.

GROWING STATISTICS

New construction—which has been reported by the Department of Commerce as a $19.2-billion dollar business this year—will become a $22-billion to $23-billion business in April or May. At that time the department expects to revise its figures on the industry upward by $3 billion to $4 billion. Major items in the addition will be a substantial increase in the figures on farm construction, and enlargement of the homebuilding figures to show value of major additions and alterations to existing homes. In addition, construction work of the Atomic Energy Commission will be included in the figures on public works. As yet AEC work has not been reflected in the Commerce figures, although ENGINEERING NEWS-RECORD does include it among contract awards.

These revisions will bring the construction series up to the point where it again equals about 10% of the national income. Currently national income is running at a rate of about $225 billion a year.

CONSTRUCTION WORKERS GAIN

Construction workers scored a gain of about 8% in real incomes in the last year. Latest figures on hourly earnings, as reported to ENGINEERING NEWS-RECORD, showed that skilled workers have won increases of 4.9% since December, 1948, while unskilled workers have gained 4.6%. Meanwhile, the cost of living, as reported by the Bureau of Labor Statistics, is running about 3% less than in late 1948. With the boost in wage rates, that means the average construction worker can buy about 8% more with his hour's pay.

Prospects are that next year will see the cost of living continuing to fall slowly.

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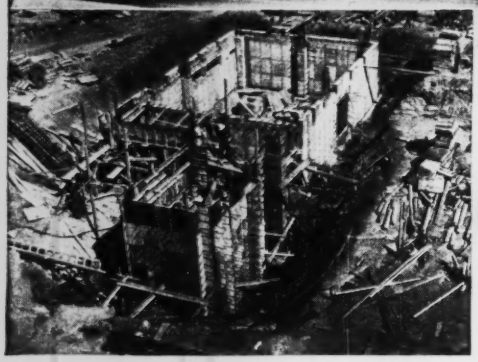

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Wherever You May Be

THIS HOLIDAY SEASON, as always, will find civil engineers and construction men in every imaginable sort of surroundings and in many a different clime. Snug mountain cabins, tarpaper shacks on a wind-blown prairie, a trailer in the desert where a pipeline is being laid, a converted box car on a railroad siding near a new bridge—these are the abodes of many who must live on the job. Others, not necessarily more fortunate, will call home a house in a small town or an apartment in a great city. But whatever the shelter, wherever the job, there will reside for these few days a universal feeling of good will and happiness—the Spirit of Christmas.

It is a time to prolong, an attitude to nurture. The year now ending has been a good one for those who follow construction. Theirs has been the privilege of being busy at useful tasks, of having tools and materials to work with, of avoiding many of the rancors born of labor strife in other years. These are some of the ingredients for a happy Christmas.

But over and beyond such mundane matters is the inherent magic of a fete of faith in friendship and in tolerance among men, in cooperation and understanding among nations. That this magic may once again be experienced by our readers, wherever they may be, is our Christmas wish. That its effects may endure throughout a happy and prosperous New Year is a natural postscript.

Stabilizing Gumbo With Lime

TWENTY-FIVE YEARS AGO highway engineers undertook to solve one of their major road-building problems by stabilizing gumbo soils with pulverized unslaked lime. Theoretically, the plan had great possibilities for providing much more serviceable earth roads at small cost. But, as a practical matter, the operation proved to be a failure. Proper mixing of the lime and soil could not be obtained with the earth-handling equipment of that day, and the unprotected road surface that was produced soon went to pieces. The thin bituminous mats that today are successfully protecting soil-cement surfacing were not used at that time.

Despite the failures of 25 years ago, new tests of lime stabilization have been undertaken, this time with promise of success. This is due chiefly to the better pulverizing and mixing equipment that is available today. Highway engineers who are undertaking the tests are confident that the encouraging results they have obtained in their laboratories can be duplicated in the field with these newer types of equipment

If these engineers are correct in their conclusions, a new low-cost means will be provided for improving thousands of miles of lightly traveled roads in the many rural areas where gumbo soil is found. This is especially significant because, if the necessary mixing can be obtained, either cement or lime can be used.

Action for Pollution Abatement

PREVENTION of stream pollution is difficult because it costs money and because it often does not bring in a return. To promote river clean-up, strong regulatory agencies spanning state borders have been born. These organizations are pursuing a common aim made more urgent by water shortages, and needs for safe and fruitful recreation and preservation of fish life. All in all they are doing a commendable job of "selling" the need for clean waters.

Newest of these above-state-level agencies—the Ohio River Valley Water Sanitation Commission—has just issued its first annual report. This crisp, well displayed summary of initial activities reveals its pattern of approach to the pollution-abatement tangle: assembly of a competent staff; fixing of policy matters in commission conferences; pursuit of sound public relations and informative publicity; cultivation of the support of industrial executives; and establishment of research programs.

Progress in all of these categories has been recorded. The start is a good one, and deserving of emulation in other regions where pollution control has only reached the conversation stage.

Public Apathy to Road Needs

TOO MANY PEOPLE are inclined to think of roads and streets as conveniences that just happen. That statement was made about Illinois highways by Charles P. Casey, director of public works and buildings in that state. It could be repeated about any state, and the apathy that it mirrors must be dispelled if an adequate road system is ever to be a reality.

It is highly desirable that national organizations such as the American Association of State Highway Officials, the American Road Builders Association and the National Highway Users Conference prepare and present to Congress an adequate national highway program. But money to finance adequate local programs for road and street building will not be forthcoming until the local people are aroused to the need for more state and local funds. The local people must be sold on the need for higher gasoline taxes, a bond issue, or whatever is decided is the best way to provide money for the work that must be done. Unless they are convinced and speak out in large numbers, few state legislators or city councilmen are going to work actively for measures that they fear will be unpopular with their constituents.

ENGINEERING NEWS-RECORD

DECEMBER 29, 1949 VOL. 143 NO. 26

Bond financing proposed for national road program

Highway Research Board meeting considers two proposals for expanding road building—Much attention centered on soil stabilization and on traffic handling

V. T. Boughton
Senior Associate Editor

Two subjects that are uppermost in the thinking of most highway engineers today—how to finance needed road work and how to get greater stability in the roads we do build—were dominant at the Highway Research Board meeting in Washington, Dec. 13-16. Considerable time also was devoted to traffic planning, highway lighting and drainage, and to pavement design.

F. V. Reagel, chairman of the research board, in opening the general meeting, emphasized the need for more research into flexible-pavement design, especially controlled field studies of design made to meet various conditions of underlying soils and a wide range of traffic densities.

J. A. Anderson, head of the Virginia Department of Highways, also pointed to the need for spending more money on research, particularly into ways for improving the vast mileage of rural roads needing low-cost all-weather surfacing. These "capillary roads" are just as much a part of our road system as are the thruways, he added. Helping the people who live on them to meet their road needs will gain their support for more work on the primary system.

Research awards

Highway Research Board distinguished service awards were made to O. K. Normann, chief of section of traffic operations of the Bureau of Public Roads, for his pioneering work in traffic operation studies, and to Kenneth B. Woods, professor of highway engineering at Purdue University, for notable contributions to the advancement of the technology of highway transportation.

The board's award for the most outstanding paper of the preceeding year went to F. N. Hveem and R. M. Carmany of the California Division of Highways for their joint contribution entitled "Factors Underlying the Rational Design of Pavements."

Bond financing for roads

Proposals for expanding the road-building program through bond financing came from R. E. Jorgensen, chief engineer of the Connecticut Highway Department, and G. P. St. Clair, chief, division of financial and administrative research, Bureau of Public Roads.

Mr. Jorgensen based his comment on studies of highway needs made by the American Association of State Highway Officials and the Bureau of Public Roads. The latter put the average annual expenditure that should be made to meet the accumulated road deficit at $4.4 billion over a 15-year period. To meet this, Mr. Jorgensen said, there is available from all sources—federal, state, city and county—only $3 billion annually. Consequently, $1.4 billion must be obtained from other sources.

Part of this money logically could come from long-term bonds, in Mr. Jorgensen's opinion, because the money is required to meet an accumulation of deferred needs. "It is illogical to expect taxpayers to accept tax rates that are based on providing for both the current and the accumulated requirements," which is necessary under current-revenue financing.

Mr. Jorgensen cited the increasing demands being placed on the states for road funds, as indicated in the accompanying chart, which does not include WPA grants. Counties and cities never have restored the cuts they made in the depression years.

As to toll-road financing with revenue bonds, Mr. Jorgensen said that it "is a costly way to get roads." Toll-collecting facilities add to the initial and continuing expense and the interest on toll-road bonds is high in comparison with state bonds.

Mr. St. Clair centered his discussion of bond financing on the primary system. Because the arterial roads being built today have assurance of long life, bond financing for them appears logical he said. Assuming a right-of-way and grading life of 100 years, structures 50 years and surfacing 30 years, the cost per vehicle mile of the $11.3 billion needed for the interstate system would be 2.3 mills for the rural sections and 3.8 mills for urban highways.

Difficulties foreseen

Mr. St. Clair added that bond financing is not permitted in some states and in others it has little practical significance because those states are so near their debt limit.

In discussion, Spencer Miller, Jr., head of the New Jersey Highway Department, observed that bond financing for highways in many states will run into "competition from other

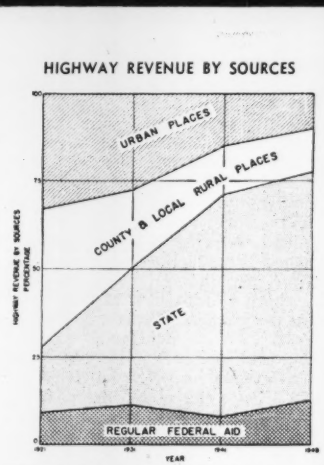
(*Continued on following page*)

Atomic waste disposal methods sound

Atomic Energy Commission has reassured the public of the adequacy of existing methods for handling radioactive wastes. That's the burden of a 30-page report, "Handling Radioactive Wastes in the Atomic Energy Program," published by AEC Dec. 9.

AEC standards, affected by the need for high production of fissionable materials, are believed entirely satisfactory from the public health viewpoint—may even prove to be too severe. And research continues on better waste handling and storage methods. Liquid waste volume which must be stored has been cut 20 percent and should be cut much more soon. At Oak Ridge, evaporation experiments are expected to cut the original storage volume 95 percent.

Other AEC research of interest to sanitary engineers is under way. Sanitary engineering departments at Johns Hopkins and New York Universities are studying effects of radioactive materials in sewage treatment processes and on bacterial slimes in sewers and sewage systems. At Los Alamos, studies are attempting to determine whether radioactivity can be concentrated from liquid wastes by means of activated sludge.



THIS CHART was used by R. E. Jorgensen to demonstrate that the states have had to supply a larger percentage of road funds each year.

good works" such as proposed bond issues for state institutions.

Results of the studies made last year in Pennsylvania (ENR Dec. 16, 1948, p. 7) to determine the savings in fuel consumption and in time resulting from improvements in line and grade were summarized by Carl Saal of the Bureau of Public Roads. Analysis of the findings shows clearly that the savings in fuel bear a direct relation to the rate of rise and fall regardless of the local characteristics of the route being followed. The same applies to the relation of gross vehicle weight to fuel consumption. Consequently, the figures developed in the Pennsylvania pilot study are applicable to studies of possible savings through the construction of improved highways in other parts of the country.

Soil density specifications

Papers on soil studies considered at the meeting ranged from an involved mathematical presentation of the mechanics of soil consolidation by electro-osmosis to discussion of the effect of re-using soil samples on moisture-density relationships for the field control of earth dam construction. In the latter paper, George H. Nelson, manager of the Law-Barrow-Agee Laboratories, Atlanta, and George F. Sowers, consulting engineer to the laboratories, stated that there is a significant difference in the maximum density obtained by re-using the same sample in the laboratory and by using a fresh sample for determining the proper density for each point on the moisture-density curve. Frequently, the densities specified as a result of re-

(Continued on page 16)

Pennsylvania ok's big school program

Construction and renovation of school and college buildings should keep many Pennsylvania contractors busy next year. Already, there's more than $26,500,000 allocated for that purpose.

Work will be carried on under two separate programs. One calls for the expenditure of $11,656,000 at 14 state teachers' colleges, under direction of the General State Authority. The other involves—so far—$15,000,000 for new school buildings, to be built by the state's Public School Building Authority, a relatively new agency just getting underway.

The teachers' college program is aimed chiefly at eliminating fire and health hazards. At least $4,200,000 has been earmarked for new dormitories to replace structures as much as 75 years old. Other projects will include new auditoriums to replace those in hazardous locations, new wiring and fireproof stairways.

The grade school program aims at furnishing buildings for school districts which can't otherwise finance necessary construction. Under the law, school districts may rent such buildings for a 40-year term. Annual payments amortize the debt over the term, leaving the building free and clear and in the possession of the district.

PSBA has completed arrangements to sell $25,000,000 worth of its bonds to the Pennsylvania Public School Employes Retirement Fund. Proceeds of this issue would be used for construction. About 200 school districts already have asked $75,000,000 worth of construction. The authority has approved 35 projects involving about $15,000,000.

New structure boosts Mobile port capacity

Storage facilities for the Port of Mobile, Ala., have been increased one fourth by completion of a new transit shed serving three new ships berths.

The $1,400,000 job was finished two months ahead of schedule by The Rust Engineering Co., Birmingham and Pittsburgh. The L-shaped building, 1,500 ft. long with a landward concrete platform, was built on pilings in the Mobile River.

Only one row of steel columns—spaced 50 ft. apart—obstructs the interior of the 200-ft. wide shed. Overhead clearance is 21 ft., which port authorities claim will permit real savings in cargo handling. The steel frame shed has concrete curtain walls to an average height of 4 ft. Above them, corrugated iron sheeting was used. The roof is a 2 x 2 in. wood deck with 5-ply built-up roofing.

Concrete floor and landward unloading platform have a 6-in. base slab with an inch of trap rock topping. The platform is 25 ft. wide, almost twice the width of earlier unloading platforms at Mobile.

MORE POWER FOR GEORGIA—Clark Hill dam, on the Savannah River between South Carolina and Georgia, was delayed somewhat by the steel strike. But the cofferdam on the Carolina side has been completed and is ready for concrete. Pouring will reach peak levels in February. (ENR Staff Photo).

DOMINATING the west side of Houston, the huge Texas Medical Center's Buildings are under construction. Architects' sketch shows layout of the $100 million center.

Houston's medical center rises fast.

Something new under the sun—a $100 million medical center unlike any other—is rising in the middle of what was a city park at Houston, Texas.

Covering a 146-acre site, the center will be made up of seventeen separate private and public institutions, brought together "under one roof" to provide all medical and research services within one area.

The center was established to accomplish three purposes:

(1) Training of physicians, dentists, nurses, public health workers, technicians and others in related arts and sciences;

(2) Encouragement and conduct of research and medical investigation concerning the causes, treatment and prevention of disease; and

(3) Care for the sick, and aid in development and provision of higher standards of hospital and medical care.

Several structures already have been completed, several more are under way.

The center had its inception Nov. 1, 1945, when the Texas Medical Center, Inc., a non-profit organization, was chartered. Governed by a self-perpetuating board of trustees, the Center Corporation took title to the 146-acre, $450,000 site made available by the M. O. Anderson Foundation. Adjoining this property, the existing Herman Hospital added 19 additional acres. Various hospitals and institutions in the state were then invited to locate in the area. Those who accepted were deeded parts of the tract.

Each institution will maintain its own leadership, but have a representative on the central governing body through a membership on the Board of Trustees. In order to assure a degree of uniformity in the buildings, the Center has reserved the right to have its committee of architects pass on all building plans.

Structures will be light colored brick, Indiana limestone and stucco. Most of the buildings will be reinforced concrete, although larger ones will use steel. Roofs will be covered with red tile, windows will be aluminum. A limit of eight stories has been put on all but the professional building. Buildings are to be designed with "dignity and restraint," preferably following the modern trend. Breaks in facade and roof lines for picturesque reasons will be avoided, and ornamental details used sparingly. All utility lines will be placed underground and all buildings will be of fireproof construction, with fire escapes within the buiding.

The first institution in the project was the Herman Hospital, established about 25 years by George H. Herman who left funds to build this 300-bed hospital for operation by his estate. In 1948, a 400-bed addition, costing $5,250,000, was completed, (ENR, Oct. 16, 1947, vol. p. 506). Shortly thereafter, Baylor University, which had operated a hospital in Dallas for many years, announced that it would move, and was prevailed upon to come to Houston. The $3,000,000 medical school was done a year ago.

Ground has been broken for a new Methodist hospital—a 300-bed institution to cost about $4,000,000. Additionally, ground is to be broken soon for the M. D. Anderson Hospital for Cancer Research.

The Episcopal Church in Texas has organized the St. Luke's Hospital group, which is preparing to build a 300-bed hospital; a $6,000,000 School of Dentistry to be operated by the University of Texas is planned, and the university will have two other projects in the center—one a post graduate school of medicine, and the other a school of public health.

Other scheduled construction includes: An Arabic Temple (Shrine) Crippled Children's Hospital, 300 beds, at a cost of $2,500,000; a charity hospital for the city of Houston, to be known as Jefferson Davis Hospital, to cost $7,500,000; an Academy of Medicine Library, to cost $1,500,000; the Hospital and Research Institute for Children.

MEDICAL OFFICES—The Herman Professional Building provides office space and services for medical personnel.

MEDICAL EDUCATION—Baylor University's School of Medicine housed in the Cullen Building, is now in service.

Georgia seeks removal of roads from politics

New policies and programs are in prospect for Georgia roadbuilding. Gov. Herman Talmadge plans to ask the legislature next month to create a constitutional highway board, to be named by the governor and confirmed by the senate. He has suggested five members so appointed that no one governor could name a majority. If approved, the proposal will go to the voters next November.

Another development is the governor's proposal that the present state road system be frozen to its present mileage until 80 percent of the network is paved. Most highway funds would be divided among Congressional districts on a strict formula.

The proposals are an attempt to remove the highway department and roadbuilding from politics and to inaugurate a long-term plan of construction. The new board would have complete control over the highway department, appointing a director and chief engineer. At present, the governor appoints the director and engineer and also appoints an advisory 12-man highway board.

USBR land, water study hit by Oregon governor

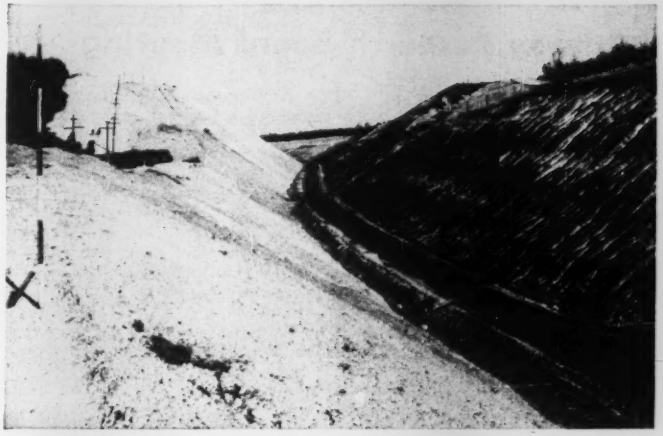
Reclamation Bureau has on its agenda a study of arable land in all or part of 12 western states, including estimates of demands of every potential water use. It can't be completed before 1952.

Part of the survey met a frosty reception from Oregon's Gov. Douglas McKay, recently. He announced he would oppose any proposal for diversion of Oregon waters to California or elsewhere until it is certain that all Oregon's potential needs will be served.

McKay's declaration came after a conference with S. P. McCasland, Reclamation engineer, and W. T. Palmer, a bureau economist. They explained that a preliminary investigation of the proposal is under consideration, to determine whether enough surplus water is available and whether the idea is financially feasible.

Deny St. Lawrence plea

A Federal Power Commission examiner has recommended that New York State's application for a license to develop St. Lawrence River power be denied. His report suggested that findings and up-to-date cost estimates be sent to Congress urging that the United States develop its part of the project.



MOPAC SPEEDS TRAFFIC—After two and one half years work, Missouri Pacific Lines has completed and opened a new line over Tip Top mountain, second highest in Missouri. Workmen moved 2,000,000 cu. yd. of earth and 36,000 cu. yd. of rock to complete the line. Shown here is the cut at the mountain's crest. It's 150 ft. deep from the top to the base of the rail, and about 7,500 ft. long. It saves .69 mi., speeds trains by reducing grades and curvature.

Court aids Pa. clean streams program

Pennsylvania's Sanitary Water Board has new jurisdiction in its campaign to halt and prevent stream pollution resulting from discharge of acid mine water.

Under a recent state supreme court decision, the board has these three rights, according to Dr. Norris Vaux, chairman and state health secretary:

1. To require that no mining operation be carried on without a board permit.

2. To refuse a permit if it be shown that discharged mine waste water will pollute a stream.

3. To require permits for strip as well as deep mining.

This jurisdiction arose when the supreme court reversed a ruling last spring by the Dauphin County Court. The lower court had denied an injunction sought by the board against a Westmoreland County strip mining operation. The board feared the mine would pollute two clean streams whence public water supply was being derived.

An essential part of the lower court's ruling was that the Westmoreland County strip mine had not polluted the stream and probably would not do so. Basing its opinion of geological and chemical testimony submitted for the mine operators, the court refused to enjoin them from operating. It did enjoin them from polluting the stream and kept jurisdiction of the case to insure that a legal remedy could be had in case pollution did arise. But its findings of fact were that the stream would not be polluted by practices which the operators had instituted.

In reversing the lower court's decision, the supreme court said in part:

"In order to avoid the peril of having its streams polluted, the Commonwealth assumes that the drainage from every coal mine is a potential menace to the purity of nearby waters and provides that before such a mine can be opened, plans must be submitted which will satisfy the Commonwealth that this peril will be obviated."

Dr. Vaux hailed the high court's ruling as one that "settles a vital phase in the successful promotion of Gov. Duff's clean streams program."

Alcocan gets hydro permit

Aluminum Company of Canada will get a license to develop electric power for aluminum production on British Columbia's Nechako and Nanika Rivers. Approval followed hearings (ENR Sept. 8, p. 12), at which fisheries interests objected.

Alcocan will need at least two years for complete investigations, according to Water Comptroller R. C. Farrow. It recently halted for the winter drilling tests for Nechako damsites without finding suitable footings.

Highway Research Board Meeting

(*Continued from page 13*)

using the same sample cannot be obtained in the field.

Similar conclusions have been reached on other work, according to Col. W. H. Mills, Corps of Engineers, who said that there have been many instances of contractors having difficulty in obtaining the high densities specified as a result of compactions made in laboratories.

Soil stabilization

Laboratory studies of the effectiveness of lime and cement as stabilizing agents for gumbo soil were reported by M. G. Spangler, professor of civil engineering at Iowa State College, and O. H. Patel, deputy engineer, Bombay Public Works Department, Baroda, India. Such soils (gumbotils) are found over wide areas in the Midwest and in India.

Either pulverized unslaked lime or cement were added to the soil samples in quantities ranging from 1 to 8 percent of the dry weight of the soil, mixing being done dry, after which water was added to bring the material to a plastic state. Tests to determine the changes produced in the physical characteristics of the soil then were run at the end of one hour and at the end of 48 hours. In general, the engineering properties of the gumbo soil were improved. There was an early and sharp decline in liquid limit, especially with the lime admixture, and the plastic limit rose. Also, there was less shrinkage. The density, however, was adversely affected, but not to a significant degree.

E. F. Kelley, of the Bureau of Public Roads stated that attempts made about 25 years ago to stabilize gumbo soils failed, primarily because of inability to mix the lime into the soil thoroughly with the equipment then available. Both he and Prof. Spangler thought that much better mixing could be obtained now with modern soil pulverizing equipment. The latter added that results as good as those obtained in his laboratory could not be expected in the field because the mixing would be less thorough.

Electrical hardening of clay

Prof. Spangler also gave an account of new attempts to stabilize clay around piles by electro-chemical action, a subject that was first studied by Leo Casagrande about 20 years ago and again in 1937, when he attached metal plates to piles before they were driven into the ground and then passed current through the ground from these plates.

As the Casagrande studies did not produce permanent hardening except with aluminum plates, aluminum was used in the studies reported by Prof. Spangler, which were made by Harry L. King Jr., construction engineer, Lytle-Green Construction Co., in the soils laboratory at Ames. Mr. King used ½-in. aluminum alloy rods to represent piles, "driving" them into boxes containing various clay soils and sandy loams.

Weights on platforms on top of these "piles" were used to determine the increase in bearing capacity. Two rods were driven into each box of soil and the soil was kept saturated. They served as poles for the passage of electric current through the soil.

The bearing capacity of the piles was tested frequently after the current had been turned on. These loadings showed a steady increase in capacity up to a certain point, after which it fell off rapidly if the current was continued. This agreed with Casagrande's findings. However these new tests also demonstrated that positive-pole piles attained maximum capacity more quickly than the negative pile in every instance.

Prof. Spangler said that the rise in load capacity is due to strengthening of the adjacent soil by the deposition of insoluble salts. The drop in capacity resulting from too long continuation of the electric current appears to be due to a white substance that forms on the outer surface of the pile, reducing skin friction. All the rods were deeply corroded.

Field tests in Kansas

Actual field tests of this method were made a little over a year ago in Kansas, according to G. C. Horning of Kansas Highway Department, in attempts to stabilize soils showing signs of distress under highway loads. The Kansas engineers used aluminum rods, copper tubing and steel reinforcing bars and obtained beneficial effects with all three, which appear to be permanent. Rods were spaced 18-in. on center and driven to a depth of 30 in.

Best results, however, were obtained with the aluminum rods, but the copper tubing, which was ordinary water pipe, gave almost as good results and the rods could be withdrawn easily, whereas great difficulty was experienced with the aluminum rods.

Encouraging results were obtained in stabilizing soils that are not suitable for road purposes by an admixture of about 3 percent of fatty acid amine acetate. This was reported by Donald T. Davidson, assistant professor of civil engineering at Iowa State College, and John E. Glab, captain, Corps of Engineers. The admixture used was the most promising of six commercial organic compounds studied by Prof. Davidson last year to determine their stabilizing potentialities through their ability to alter the properties of the clay fraction of the soil by ionic exchange.

The amine acetate used in this latest study is derived from beef tallow and can be obtained in car-load lots for 35c. a pound. By its use, the liquid limit of the two soils tested was reduced and the plastic limit was raised. The unsoaked California bearing ratio was decreased but the soaked CBR was increased. Swelling characteristics were reduced and the BRP classification of the soil was altered from A-2-6(0) to A-1-b.

No tests have yet been conducted to determine the permanency of this method, but the earlier studies by Mr. Davidson showed that repeated washings with distilled water had little effect on the engineering properties of the soil.

Frost action on roads

Considerable progress on the cooperative study of frost action was reported by C. L. Motl, maintenance engineer of the Minnesota Highway Department, head of the committee conducting the research. A conclusion reported last year's meeting that loss of strength due to frost action might be as high as 60 percent was confirmed by additional load tests made last spring.

Efforts to correlate field bearing tests with simpler instrument tests, such as use of a cone penetrometer, are being continued. They show that the instruments' readings are much more susceptible to being distorted by some local soil condition than are the results of plate bearing tests. Consequently the committee is undertaking to develop a quicker form of load test that can be widely used in advance of the slower plate-bearing test and still produce information of value.

New officers elected

Ralph A. Moyer, research engineer at the University of California Institute of Transportation and Traffic Engineering, was elected chairman of the Highway Research Board at a meeting of board members at the close of the annual meeting. He succeeds F. V. Reagel, engineer of materials, Missouri Highway Department. R. H. Baldock, Oregon state highway engineer, was elected vice chairman.

This report will be concluded in the issue of Jan. 5, 1950.

Claim new world record on California tunnel

A new world's record is claimed for 24-ft. dia. tunneling at Southern California Edison Co.'s Big Creek No. 4 hydroelectric project, near Fresno.

Morrison-Knudsen Co. tunneled 222 ft. through solid granite from Nov. 28 through Dec. 3, averaging 37 ft. per day, with a peak of 41 ft. pushed through on Dec. 3. Three shifts have been working six days weekly to cut through Tunnel No. 1, the main power tunnel, which will run 2,415 ft. Already completed are 2,195 ft. of the tunnel. A second tunnel, also 24-ft. dia., will be started soon.

Conventional methods employed include the use of one large jumbo and a double-motored Conway mucker. The jumbo has 13 drills set on three levels using 2-in. alloy bits. Twelve 14-ft. rounds were drilled during the record 6-day period.

Morrison-Knudsen Co., which with Bechtel Corp. is general contractor on the Big Creek No. 4 project, has charge of the tunneling.

H. L. Leventon is Morrison-Knudsen's dam and tunnel construction manager and Carl J. Herslof is tunnel superintendent. W. L. Chadwick is manager of engineering for Southern California Edison Co., Ltd.

Six-point research plan is established by BRAB

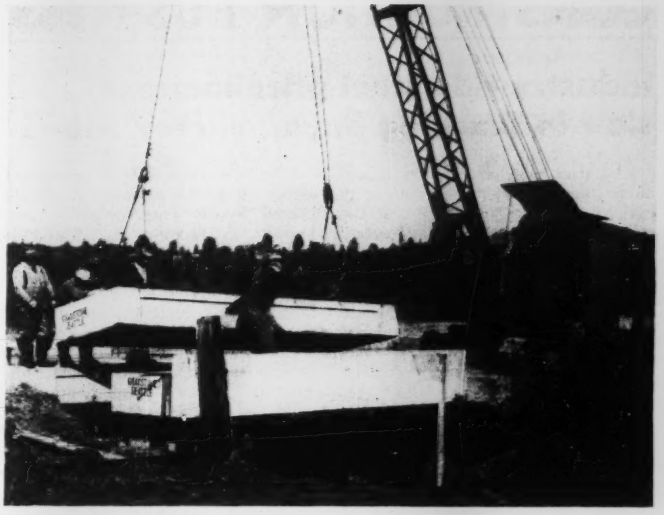
Building Research Advisory Board has established a six-point research program upon which action will be started immediately.

Executive Director William H. Scheick described the following program:

1. A survey to develop a list of urgent building problems susceptible of solution by research.
2. A series of research correlation conferences.
3. Analyze in detail a "master outline" of building research to determine what its present status is.
4. Encourage government agencies concerned with building research to use BRAB's advisory services.
5. Cooperate with builders' and contractors' associations to promote field tests and demonstrations of research results.
6. Develop an effective information and publication program.

These activities, Scheick said, will form the basis of a five-year program which will be expanded as funds become available.

BRAB is set up within the National Research Council to serve as a clearing house for building research data.



RAPID BRIDGE BUILDING—Washington highway crews lower a precast concrete slab into position for a small bridge on a country road. Designed by Homer Hadley, consulting engineer, multiple precast units are used in a program to replace many old wooden bridges. The slabs are 4 ft. wide, 16 ft. long and 20 in. deep, weighing 3½ tons. Spans up to 32 ft. are possible. These bridges may be widened or moved easily and can be built rapidly by small crews.

Russian grass stabilizes McNary soil

Army Engineers have imported a species of hardy grass from central Asia to bring about permanent stabilization of sand adjacent to a railway relocation in southeast Washington state. The job is necessitated by construction of McNary Dam (ENR Aug. 11, p. 26).

Planting of approximately 40 acres in three blow-sand areas was completed recently. Another 50 acres is scheduled for planting next year, in cooperation with the Soil Conservation Service.

The grass, known as Volga mammoth wild rye (elymus giganteus), has large tough foliage that grows in dry areas such as that around McNary, where the annual precipitation is about 8 inches. Neither livestock nor rabbits will eat it. Since it grows in winter, the grass contains enough natural moisture so that it is not subject to burning, an ideal characteristic for railroad right-of-way.

The Corps of Engineers obtained 936,000 plants from nurseries at Pullman and Ephrata, Wash., where the species has been developed by the Soil Conservation Service. The plants were set 24 in. apart each way and from 8 to 12 in. deep in the sand, after the area had been sprinkled thoroughly. Two plants were used in each hill. Planting is done when the temperature is below 55 deg. Food stored in the root stock and stem enables the grass to survive until growth starts, about Feb. 1, when fertilizer will be applied to stimulate growth. A 60 per cent survival is sufficient for stabilization.

The Volga wild rye forms large clumps, due to rapid multiplication of stems from underground sprouts. These underground root sprouts spread and create new clumps.

Two strains of the rye were used, one on areas more subject to drying out and the other on areas more adapted to deeper deposits. The sand must be at least 2 ft. deep for the plants to be effective.

The rye was selected because, once established, it is permanent, whereas other stabilization methods require maintenance.

Penn State asks buildings

With the Pennsylvania State College completing a $16,000,000 building program—new dormitories and dining halls, chiefly—it has asked the General State Authority to undertake an additional $14,925,000 expansion.

Acting President James Milholland said the proposed new buildings would be used by all departments.

CONSTRUCTION BUSINESS

Industrywide steel price increase slow in reaching buyer, survey shows

The steel price rise is now unanimous since all major steel companies have upped their prices. But a last minute check of major construction centers by ENGINEERING NEWS-RECORD shows the price pinch is not yet being passed on to the consumer.

ATLANTA reports steel sources indicate no price rise will be reflected this month, and the recent increase may be absorbed without being passed on to buyers.

CLEVELAND will probably not feel the steel price rise until after the first of the year, according to the ENR reporter in that city. Stocks at the new prices will not be received from the mills until that time, and again local distributors may absorb some of the increase. Buying is not markedly heavy to take advantage of steel now in stock at the old price. No increase has come through either on reinforcing bars in CLEVELAND, so prices remain unchanged.

In PHILADELPHIA, structural shapes, reinforcing bars and steel sheet piling remain at the old prices. Suppliers say no increase in their lists is anticipated at the present time.

DETROIT steel prices have not gone up, and sources there say "Right now we don't know what's behind the price increase, and until we do know we're standing pat."

LOS ANGELES' U. S. Steel Supply Co. has indicated that warehouse prices would rise after the first of the year, but at the present time the increase in costs to the supplier have not been passed on.

MINNEAPOLIS structurals and bars have not been increased either, and a local informant says no changes are contemplated unless there is a general upping of quotations by other steel handlers.

BALTIMORE, DENVER, DALLAS and CINCINNATI also record the old steel rates at present, with no reflection of the recent rise of up to $2-3 a ton in mill quotations on construction steel.

NEW YORK'S prices "don't reflect impending changes" in steel warehouse lists, and the picture is not expected to crystallize until after the first of the year. It is possible that NEW YORK distributors will absorb at least part of the increase, for competitive reasons. On some items, such as bars, most of the price hike is apt to be in the form of extras.

Some foreign steel is coming into the NEW YORK market at prices averaging $20 a ton below domestic delivered prices. Size extras on steel imports are as much as $5 and $6 lower than for steel produced in the U. S. This imported steel at present amounts to no more than 15,000 tons in the entire Northeastern area but importers believe it will be up to 35,000 or 40,000 tons in the near future, still not enough to affect the domestic market. Luxembourg, Belgium and France supply the bulk of this steel.

Wage rate increases held to postwar low as year ends

Wages in the construction industry were steadier in the last six months of 1949 than in any comparable period since the war.

The ENGINEERING NEWS-RECORD average of common construction labor rates on buildings and heavy construction went up less than one percent, remaining stable from September through December in the 20 cities covered by regular ENR wage rate surveys. The December average was $1.478, up 1.3 cents from July's 1.465.

The average of carpenters', bricklayers' and structural ironworkers' rates in the same 20 cities advanced only slightly more than 2 percent during the same period, and was stable for the last two months. It closed out the year at $2.652, up 4.9 cents from the $2.413 recorded in July.

Comparison of wage hikes in the final six months of the years since the war, shows 1947 as the year of the biggest increases. The unskilled average went up 3.9 cents in the final six months of 1947, and the skilled average 6.7 cents. These compare with the 1.3 cent average rise for unskilled and 4.9 cents for skilled wages in the final half of 1949.

Preliminary reports on construction wages for January 1950, show very few changes over final '49 figures in the 20 cities regularly surveyed. Dallas unskilled laborers on heavy construction are getting up to $1.50 an hour, instead of the old and still official $1.275. In New York, electrical workers have cut their 7-hour day down to 6 hours. Denver labor groups will start negotiations soon after the first of the year.

There are some forerunners, however, of the fifth-round for wage hikes next spring. Baltimore leads the field so far with wage boosts already granted. Carpenters were upped 15 cents and ironworkers and reinforcing steel workers 10 cents as of April 1; the scale for boilermakers will go up 12½ cents on the first of the year.

San Diego ironworkers who recently got an 11½-cent raise, were granted an additional 3 cents effective April 1, 1950. Washington plumbers were upped 5 cents last month, with the understanding that there would be another 5-cent increase on January 1, to run until July 1951. This contract may be renegotiated in November 1950, however, "if economic conditions warrant" it.

Los Angeles building trades will seek a shorter working week without a reduction in pay. They are asking the same pay for six hours as they are presently paid for eight, plus paid vacations and paid holidays. The rate per hour would, of course, have to go up to achieve this. In Cleveland the AFL Painters union, which won an employer-financed welfare and health plan last May, is calling on the city's 19 other building trades to forego a 1950 wage rise. But the unions which failed to secure these benefits in 1949 may be expected to hold out next spring.

Lumber Prices Reduced

Lumber prices are declining in 6 of the 20 major construction centers covered by a late-December ENGINEERING NEWS-RECORD price checkup. The average drop is between $1 and $3 per Mbf.

Cincinnati short leaf yellow pine in sizes up to 2x8 is down between $1 and $3, with 2x4's priced now at $80 per Mbf, off $3. Douglas fir 2x4's are $12 lower at $83 Mbf.

Cleveland pine prices are reduced most, both 1x6's and 1x8's down $4.50 Mbf. The new price for pine 2x4's is $2 lower at $66.75, and for Douglas fir 2x4's $3 lower at $77 Mbf.

Detroit reductions range from $1 to $3 on pine, and $2 to $5.50 on Douglas fir items. Pine 2x4's are $2.50 lower at $66 Mbf, and Douglas fir 2x4's are down $2 to $80 Mbf.

Los Angeles Douglas fir lumber dropped by $1 to a new price of $71 Mbf, on all sizes up to 2x10's.

Pittsburgh's only cuts were $10 reductions in prices of Douglas fir 2x6's and 2x8's from a range of $100/$110 to $90/$100.

St. Louis prices are $0.75 to $5 lower. Yellow pine 2x4's (10-16 ft.) are off $0.75 to $97.75, while fir 2x4's are unchanged. Other Douglas fir items are down as much as $1.75 Mbf.

BIDS AND BIDDERS

(Major project news received after Construction Reports, page 42 went to press.)

Steam Generating Plant—Central Electric Power Co-operative, Velva, N. D., plans steam generating plant to cost $8,000,000. Bids will be opened December 28 for turbines, boilers, transformers and sub-station equipment at about $3,000,000. Ulteig Engineering Co., Fargo, N. D., is engineer.

Army Housing—Department of the Army, Fort Monmouth, N. J., plans to select sponsor at meeting in January to construct 600 rental housing units at Fort Monmouth, at about $5,000,000.

Hospital—Cunningham-Limp Co., Detroit, Mich., has been awarded contract to build hospital at Detroit, Mich., for Saint John's Hospital Corp., Detroit, at about $5,000,000. Maguolo & Quick, Detroit, are architects.

Laboratory—National Bureau of Standards, Department of Commerce, Washington, D. C., plans central radio propagation research laboratory at Boulder, Colo. The estimated cost is $4,500,000. Work will be started in the summer of 1951.

Bridges and Road—Adam Eidemiller, Inc., Greensburg, Pa., was low bidder at $3,521,496 for constructing divided highway, including six bridges in Pittsburgh, Allegheny County, when the Pennsylvania State Highway Department, Harrisburg, opened bids December 21.

Office—Gibraltar Life Insurance Co. of America, Dallas, Tex., plans office building in Dallas to cost $2,000,000 to $3,500,000. Thomas, Jameson & Merrill, Dallas, are architects.

City Market—Consolidated Engineering Co., Baltimore, Md., has been awarded contract to build Lexington Market and Parking Building at Baltimore by the City of Baltimore's Lexington Market Authority at $2,563,000. Edward H. Glidden, Jr., is architect, J. E. Greiner Co., consulting engineer, Henry Adams, Inc., mechanical engineer and Van Rensselaer Saxe, structural engineer.

Dam—City of Hamilton, Ont., will ask bids about the end of January for constructing the John Arkledun Dam for increasing the city's water supply. Estimated cost is about $3,000,000. W. L. McFaul is city engineer.

Engineering Building—O. W. Burke Co., Detroit, will construct a $2,250,000 engineering building at Pontiac, Mich., for the Pontiac Division of General Motors Co., Pontiac. Albert Kahn Associated Architects and Engineers, Inc., is engineer-architect for project.

Suspension Bridge—Transcontinental Gas Pipe Line Co., Houston, Tex., awarded contract for substructure for suspension bridge over the Atchafalaya River at Melville, La., to Kansas City Bridge Co., Kansas City, Mo. at $1,011,140. American Bridge Co., Pittsburgh, Pa., will construct superstructure at $849,747. Matthews & Kenan, San Antonio, and Mitchell & Hunt, San Antonio, are consulting engineers.

Military Housing—Department of the Army, Fifth Army, Minneapolis, Minn., plans to select sponsor to construct military rental housing at Fort Snelling, Minn. The cost of the project will be about $3,000,000.

New Jersey Turnpike—Poirier & McLane Corp., New York, N. Y., was low bidder at $1,968,730 when bids were opened December 20 by the New Jersey Turnpike Authority, Trenton, N. J. This is initial Turnpike project and includes grading, and draining at Linden, Union County. There were seven bidders with a high bid of $3,167,790.

Fair Grounds Buildings—Kentucky State Fair Board, Louisville, has preliminary plans underway and expects to take bids early in 1950 for fair grounds buildings at Louisville to cost $3,500,000. Fred Elswick, Louisville, is architect.

Dikes—McDonald & Kruse, Sun Valley, Calif., were low bidders for constructing dikes around naval installations at Terminal Island, Calif., at $1,028,900. Bids have been forwarded to Bureau of Yards & Docks, Washington, D. C., for announcement of award.

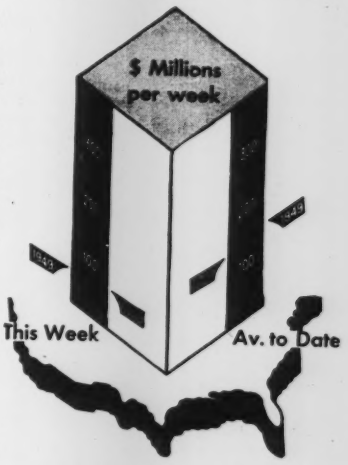
Department Store—Jordan Marsh Co., Boston, Mass., will take bids January 19 for constructing second unit of department store at Boston. Estimated cost is $2,500,000. Perry Shaw and Hepburn, Kehoe & Dean, Boston, are architects.

Sewers and Auditorium—City of Corpus Christi, Tex., approved a number of bond issues, including $2,260,000 for sewerage improvement and $1,400,000 for auditorium and convention hall.

COSTS AND VOLUME

ENR INDEX NUMBERS

Index Base = 100		1913	1926
Construction Cost	Dec. '49	480.32	230.89
Building Cost	Dec. '49	353.07	190.86
Volume	Nov. '49	265	116



Activity This Week

As reported to ENR (in millions of dollars)

Amount of contracts let

	Week of Dec. 29 1949*	Cumulative 1949 (52 wks.)	Cumulative 1948 (53 wks.)	% chge av.wk.
Federal	$6.5	$1,184.8	$951.2	+27
State & Mun.	29.4	3,110.4	2,686.7	+18
Total Public	$35.9	$4,295.2	$3,637.9	+20
Total Private	30.9	3,862.2	3,581.4	+10
U. S. Total.	$66.8	$8,157.4	$7,219.3	+15

Contracts by type of work

	This Week	Cumulative 1949 (52 wks.)	Cumulative 1948 (53 wks.)	% chge av.wk.
Waterworks.	$1.5	$207.2	$208.6	+1
Sewerage	2.9	277.2	227.7	+24
Bridges	5.7	356.6	302.6	+20
Highways	11.3	897.2	995.8	−8
Earthwork, Waterways.	4.9	524.2	519.5	+3
Buildings,				
Public	10.0	1,735.7	1,161.3	+52
Industrial	5.3	950.0	1,095.6	−12
Commercial	23.0	2,406.2	1,888.5	+30
Unclassified	2.2	803.2	819.7	...

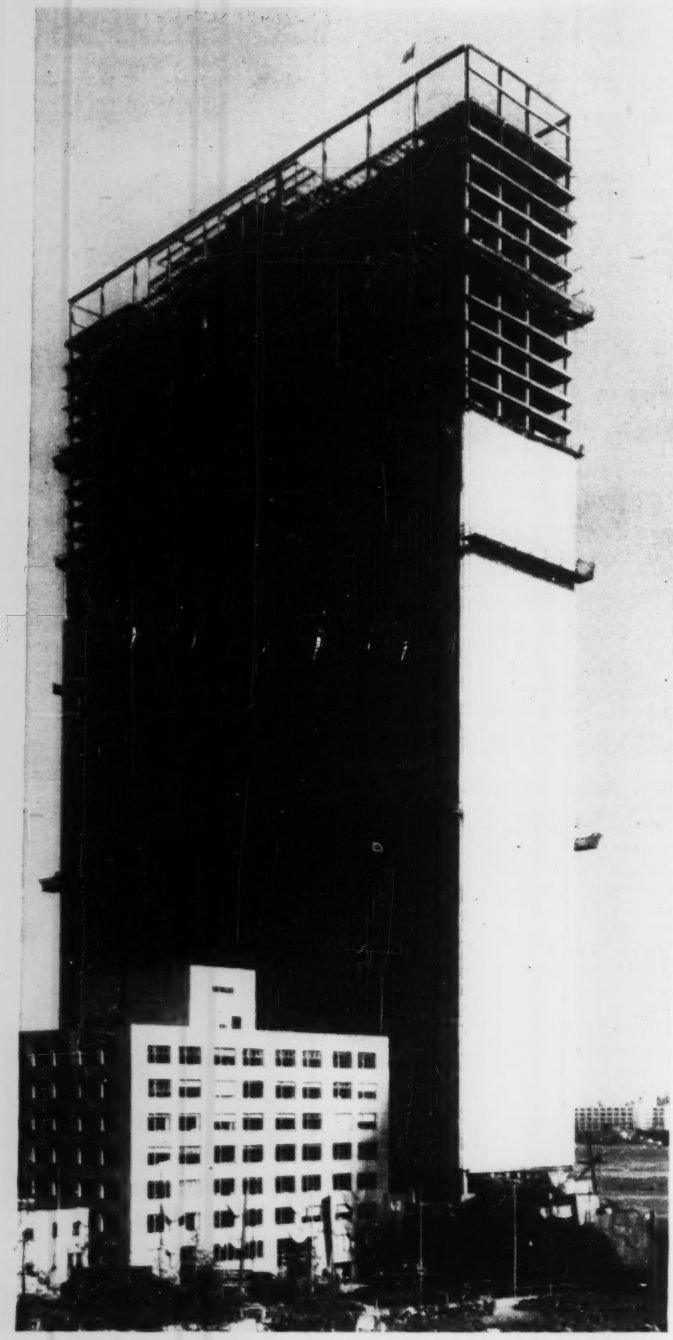
NOTE: Minimum size projects included are: Waterworks and waterway projects, $28,000; other public works, $50,000; industrial buildings, $68,000; other buildings, $250,000.

New capital for construction

	1949 (51 wks.)**	Cumulative 1948 (52 wks.)	% chge av.wk.
NON-FEDERAL	$5,510.0	$5,175.0	+9
Corporate Securities	2,145.6	2,684.4	−19
State and Municipal	2,979.4	1,998.3	+52
U. N. Building Loan	....	65.0	...
Federal-Aid Highway	385.0	427.3	−10
Federal	1,748.2	1,558.9	+12
Total Capital	$7,258.2	$6,733.9	+10

* Four day week

** Week of Dec. 29, not available



GLASS AND MARBLE inclose the steel frame of the 39-story UN Secretariat in New York City. For safety during erection, movable catch scaffolds were suspended close to the work of the various trades as the job progressed.

A Slender

PLACEMENT of the walls dramatizes the unusual appearance of the United Nations Secretariat—first structure to be built for the UN in New York City.

Viewed from the north or south, it is opaque—an unbroken stretch of white marble 72 ft. wide towering 500 ft. above adjacent E. 42nd Street. But from the east and west the building is transparent—windows projected 3 ft. in front of the steel frame occupy nearly all of the 287 x 500-ft. faces.

The Secretariat, 39 stories high, with three basements and penthouse, is located at the south end of a 17-acre site in midtown Manhattan (between E. 42nd St. and E. 48th St., from Franklin D. Roosevelt Drive to First Ave.) It is being built by a corporation composed of four general contractors and managed by an operating committee consisting of two officers from each firm. The combine put one man in charge on the site, pooled equipment, subcontracted principal types of work and held conferences regularly to make major decisions.

Construction has proceeded smoothly and swiftly.

Excavation was begun in Sept. 1948, and completed in five months. Digging and blasting down to 31 ft. below street level, the excavators removed 150,000 cu. yd. of earth and 65,000 cu. yd. of rock. Then, concrete piers—carried to rock at an average depth below grade of 13 ft., but some as much as 40 ft.—were cast to receive the steel frame.

Steel erection was started in April, 1949, and completed in 23 weeks. The three derricks employed placed an average of 580 tons of structural steel per week.

In about the same length of time, 5,400 windows and glass spandrels, and 2,000 tons of Vermont marble, were set to inclose the building on all four sides.

Survey fixed position of windows

Window frames had to be installed with great accuracy because of the large number of windows in each story and the possibility of cumulative error. Each window is an integral part of a 4 x 12-ft. aluminum grid unit. The desired accuracy was attained by using precise surveying methods to locate the supporting brackets for the frames near the edges of the floor

Skyscraper for United Nations Secretariat

A blending of international architectural thought, the world capitol posed problems in . . .

- **Constructing long runs of aluminum windows**
- **Locating a service core in a transparent shell**
- **Resisting wind load**
- **Zoned air conditioning and radiant heating**
- **Setting 500-ft. end walls of marble**

slabs, which are cantilevered past the spandrel beams.

The brackets were bolted to short sections of 5-in. wide-flanged beams embedded in the concrete floor slabs at 4-ft. intervals. Use of a stud welder for securing the bolts to the beam inserts enabled the bolts to be precisely set on the survey lines.

The floor-to-floor height in most stories is 12 ft., of which 8 ft. is taken up by double-hung aluminum windows, glazed with heat-absorbing plate glass. Shallow areas immediately above the windows, where spring balances are housed, are faced with aluminum. Areas below the windows are faced with 2-ft. 10-in. high panels made of ¼-in. thick, heat-absorbing wire glass, painted black on the inner face. These spandrels are separated by a 3-in. air space from a 4-in. cinder-concrete-block backup that extends 2 ft. 9 in. above the floor slab. One inch of asbestos-cement insulation was placed on the inner face of the backup.

On the 6th, 16th, 28th and 39th floors, where fan rooms and other air-conditioning equipment are located, the windows, which are of the projected type, are reduced in height to 2 ft. 4 in. and the glass spandrels omitted. Instead, the windows are framed between continuous strips of aluminum louvers at top and bottom. Floor-to-floor height is one foot greater than that for the office stories, except for the 6th floor.

Above the main roof, the spaces between the mullions on the east and west facades will be occupied by aluminum panels. A narrow marble fascia will extend across the top between the 3-ft. 4-in. wide vertical marble returns at the ends of the structure.

Building the marble walls

The marble blocks for the north and south walls were raised with small mobile booms, the masons working from a hanging scaffold. In each story, 1-ft. 6-in. deep, 12-in. thick, bond stones were set on the floor slab with a 5-in. overhang and anchored to the spandrel beam. Then, the 4-in. facing, consisting of 2-ft. 2¾-in. long by 3-ft. 6-in. high blocks, was set on top. When the 8-in. brick backup was laid, the marble was anchored to it.

The walls have a horizontal expansion joint under the bond stones at the spandrel beams. These beams thus support only the weight of walls between floors and transmit this load through 2-ft. 7½-in. long brackets to the columns. There are also four vertical expansion joints in these walls.

Wind design by cantilever method

The wind load on the exterior of the building is resisted by the floor slabs and the structural frame. Stresses were calculated by the cantilever method for a wind load of 30 psf. on the top story gradually diminishing to 20 psf. at the 9th floor.

Because of the slenderness of the structure, the height-width ratio being about 7:1, wind forces are relatively high in the lower stories, and 1¼-in. rivets had to be used up to the 17th floor for the east-west girder wind connections. The difficulty of driving these rivets slowed up the riveting of the frame.

In general, the wind girders are connected to the flanges of the columns with T-shaped beam stubs at top and bottom. To resist the negative moment, the girders are reinforced at both ends with cover plates extending to the quarter points of the span.

Columns are spaced 28 ft. on centers in the north-south direction. Across the width of the building, they are 20 ft. 8 in., 18 ft. 2 in. and 27 ft. 8 in. apart, going from west to east. They were erected in two-story lengths.

Heavy wing plates—some over 7 ft. high and almost 5 in. thick—were riveted to the bases of the bottom columns to distribute the load to the steel grillage beams on the concrete piers. These columns are 14-in., 320-lb. H's with cover plates on the flanges varying in width and thickness up to 36 x 5 in.

Floorbeams span the 28 ft. between columns or wind girders and support the floor slabs at 9 or 10-ft. intervals. Except for the cast and west end panels, which are made of stone concrete, the floors are grit-aggregate concrete, reinforced with wire mesh. The end panels cantilever 2 ft. 8½ in. past the spandrel beams and are reinforced with hooked bars.

Structural slabs for office floors are 4 to 5½ in. thick. They were designed for a live load of 50 psf. plus a partition load of 20 psf. They are topped with a 4-in. grit-aggregate concrete fill and a 1-in. cement-mortar finish.

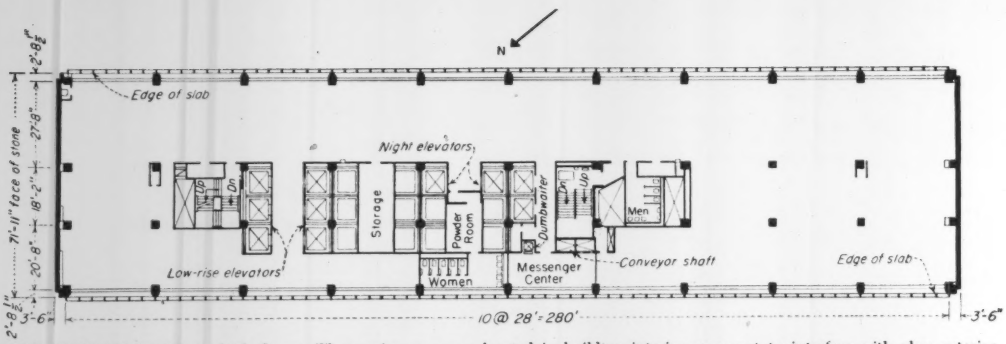
Speedy elevators installed

Vertical transportation in the Secretariat is provided by 18 high-speed passenger elevators, two service elevators, a freight elevator and eight glass-inclosed moving stairs. Six of the passenger elevators will terminate at the 15th floor, six at the 27th floor, and six at the 39th floor. Two of the last bank are night elevators, which serve the three basements as well as all stories above ground. The high-rise elevators have a speed of 1,200 fpm., the medium-rise 1,000 fpm. and the low-rise 800 fpm.

The service elevators will serve the basements and all 39 floors. The freight elevator is to be of the hydraulic-plunger type and operate at 50 fpm. It will serve the second and third basement floors, where mechanical facilities are housed. The moving stairs are to extend from the first-basement lobby, which leads to an indoor parking garage, to the fourth floor. Elevators and stairways are centrally located in the building so as not to disrupt the continuity of the glass exterior.

The Secretariat will also have an electric dumbwaiter system and a vertical conveyor system extending from the third basement to the 39th floor. In addition, there will be a pneumatic-tube system with a central station in the third basement and tube connections to stations on the 10th and 15th floors, the library and the Meeting Halls building, yet to be built.

The Secretariat is completely air conditioned. The exterior portions of



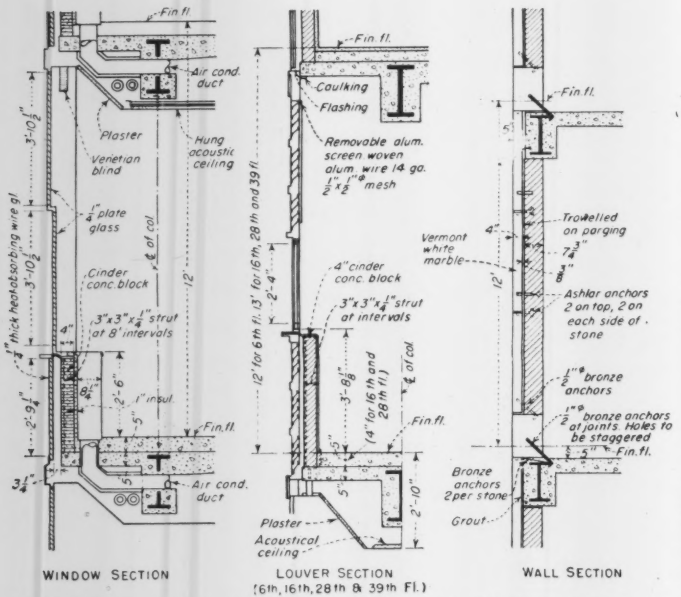
FLOOR PLAN for 8th to 14th floors. The service core was located in building interior so as not to interfere with glass exterior.

each story—up to 12 ft. from the windows—are served by a high-velocity system, with units located under six of the seven windows in each bay (ENR April 21, p. 13). Alternate units contain temperature controls.

The remainder of the floor will be served by a conventional low-velocity system with inlet diffusers and exhaust outlets in the suspended, metal-pan acoustical ceiling. The outlets adjoin 4-ft. long recessed fluorescent-lighting troffers, which are spaced 7 ft. on centers to meet design requirements for 30 ft.-candles at desk level. The 1½-ft. space between the ceiling and floor slab above serves as a return plenum for exhaust air.

Additional heat will be provided by radiant-heating wrought-iron coils in the floor of the first-floor lobby, where 1-in. pipe is used, and on the inside faces of the north and south facades, where ½-in. pipe is installed. Prefabricated in a shop in 4-ft. wide by 15-ft. long units, the pipe is spaced 6 in. c. to c. and embedded in the plaster. They are heated by hot water, the flow of which is controlled by automatic thermostatic valves.

Fan rooms and air-conditioning equipment required for the upper areas of the building are concentrated on the 6th, 16th, 28th and 39th floors, which also are used for pipe crossovers. Machinery is concentrated at the center of the floor so that peripheral areas can be used for office space.



FACADES on the east and west are mostly window (left), with aluminum louvers in some stories (center). On the north and south are marble-faced walls (right).

Steam for heating will be purchased from the New York Steam Corp. Cooling will be achieved with chilled water circulated from a plant in the third basement of the Meeting Halls.

The Secretariat, which will contain 889,000 sq. ft. of floor area, is being built for the United Nations under a $23,809,573 contract by Fuller-Turner-Walsh-Slattery, Inc. This organization was formed for the purpose by George A. Fuller Co., Turner Construction Co., Walsh Construction Co., and Slattery Contracting Co. Matt Grogan is project manager.

The 13,500 tons of structural steel were erected by the American Bridge Co. Concrete floor arches were placed by Brennan & Sloan and Knickerbocker Construction Corp. Fischbach and Moore, Inc., is installing the electrical work, Eugene Duklauer, Inc., the plumbing, and Almirall & Co., Inc., the heating, ventilating and air conditioning. Rome Construction Co. set the stone. And General Bronze Corp. is installing the aluminum grids and ornamental metal.

The Secretariat was designed by a board of architects from all over the world, with Wallace K. Harrison of New York City as Director of Planning and Max Abramowitz as deputy director. James Dawson is coordinator of construction, Glenn E. Bennett is executive officer and Herman L. McCleod is comptroller for the UN. Edwards & Hjorth were consulting engineers on structural design, and Syska and Hennessy were consulting mechanical engineers. Moran, Proctor, Freeman and Mueser were consulting engineers on the foundations.

In addition to the Secretariat, which is expected to be ready for occupancy in the summer of 1950, work now under way includes foundations for the Meeting Halls, General Assembly, and north and south parking garages; a service road along the west side of F. D. Roosevelt Drive from E. 42nd St. to E. 48th St. and foundations for a cover over the drive.

After months of careful preparation . . .

Bridge Placed in 13 Hours

At 4:30 A.M. Nov. 20, Brann & Stuart Co., Philadelphia contractors, began wrecking half of a four-track temporary trestle on the Pennsylvania Railroad main line at Iselin, N. J.; thirteen hours later they gave the "all clear" for rail traffic on a permanent half-through ballasted girder bridge. And two weeks later they repeated the performance, even faster, on the other half.

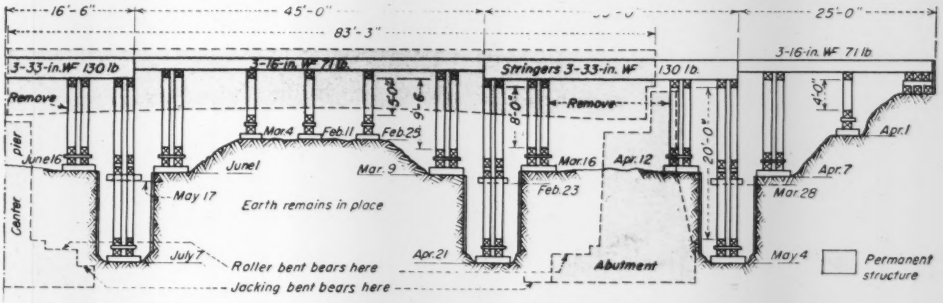
Behind the two quick-switches stretched a long period of preparation—months of burrowing the temporary trestle into virgin ground under full-speed rail traffic and weeks of erecting the permanent bridge halves on roller-capped bents at both sides of the temporary span.

The first two-track half consisted of three plate girders for each of two spans that gave the bridge a total length of 167 ft. Floor beams decked with concrete connected the girders. The second half had two girders for each span, with a set of floorbeams between the two and a projecting set (hung on 10x16-in. falsework brackets) arranged to frame into stiffening angles on webs on the adjacent girders of the first half. These girders originally were erected with the second half to act as templates while the decks were poured. They then were removed and re-erected with the first half. When the halves came together Dec. 4, practically all of 600 rivet holes lined up without need for reaming. (There was scant room for erecting the second half because it had to be sandwiched between the temporary trestle and a new Lincoln Highway bridge alongside, also part of Brann & Stuart's contract.)

The new bridge will allow New Jersey's Route 4 parkway to pass under the railroad. (ENR, Mar. 17, 1949, p. 123). The site is a new one, where formerly the railroad ran at grade.

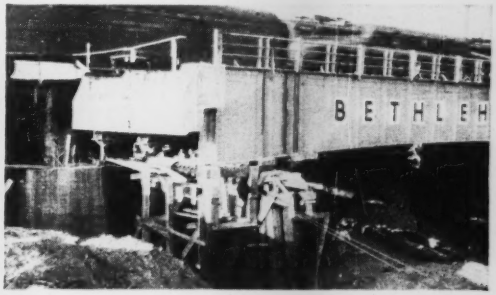
Building the temporary trestle

Temporary trestle construction at the site was essentially a burrowing process—burrowing for bents and foundation-construction space. How the contractor did it is indicated by the drawing below. First, he assembled stringers to go under each of the eight rails; each stringer was made up of three 16-in or 33-in. beams, clamped together. Taking one track out of service at a time, he excavated for stringers, padding and sills,



TRESTLE BENTS were burrowed in virgin ground to support four-track high-speed traffic on 3-in. superelevated curve. Rails were carried by triple-beam stringers. Dates at sills indicate order of excavation and ben-construction for one-half of trestle.

FINISHING TOUCHES go into new bridge half (right) to be slid into place of temporary trestle (left). Inner-track ballast was clamshelled to wheel-mounted chute on outer track.



READY FOR HAULING as soon as temporary trestle is wrecked, new structure stands on roller-topped erection bents that extend to final position. Note hauling lines.

laid these elements and relaid track. Outside-track excavation was performed by 1½-yd. shovels from the sides, and interior excavation was done by ¾-yd. clamshells. Sills and stringers were set by a 60-ton locomotive crane that rolled on freshly laid track.

During stringer installations trains on adjacent tracks ran full-speed, so unusual safety measures were adopted. (Particularly because curves reduce visibility both ways to a quarter mile.) In addition to flagmen and whistlemen at the site, on-job warning lights actuated by engine passage two miles away gave time for a loudspeaker warning to men on the job, and crane operators had plenty of notice to get their booms in line with the out-of-service track.

With stringers installed, the contractor went underneath, to begin excavation for bents whose caps would be the erstwhile stringer sills. The order of construction is indicated by dates at mud-sills in the drawing.

Probably the most unusual feature of temporary trestle construction was the method developed for removing earth under the tracks. On one side of the tracks an air-powered 2-drum winch with a continuous cable reeved through a sheave at a deadman on the opposite side, pulled an open-bottom ¾-yd. crescent scraper back and forth on the line of the bent to be installed.

The small scraper was a device for cutting where headroom was low. When headroom was ample, a 1-yd. crescent scraper did the job, and in pier spaces bulldozers removed earth. All earth was stable and there was shale above pier-bottom level.

Bents hung from stringers

In the case of the six two-stage (deep) bents, adjacent bents took the two-stage bent loads during second-stage excavation. First-stage timbering, minus sill and padding, hung from stringers, leaving 20 in. headroom for the small scraper to resume work. Upon completion of this excavation, a pony bent was installed under the first-stage bent and jacked up tight.

The temporary trestle required 19,000 cu.yd. of earth excavation, 800 ft. bm. timber and 250 tons of steel. The bridge's total length was 240 feet.

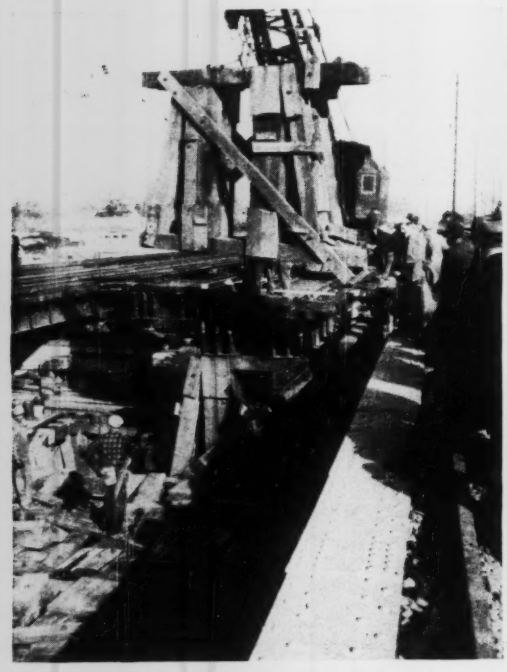
As temporary-bridge construction proceeded, the contractor set four roller-topped bents on each side and commenced erecting the permanent-bridge halves, which would be complete with ties and tracks (three tracks ballasted) before the big moves took place.

Erecting permanent bridge

Erection bents were located as shown on the drawing. When piers were completed, the erection bents were made continuous, bearing as shown inside final bridge lines. These bents were topped by a rail-and-roller arrangement, on which erection took place, and which later would enable bridge movement. Cold-rolled steel rollers 2¼ in. dia. and 3 ft. long were held 1 ft. apart by drilled parallel bars. There were 56 rollers in each of eight assemblies (four for each bridge half). These assemblies were sandwiched between rails and runners, both of which were groups of four 100-lb. railroad rails.

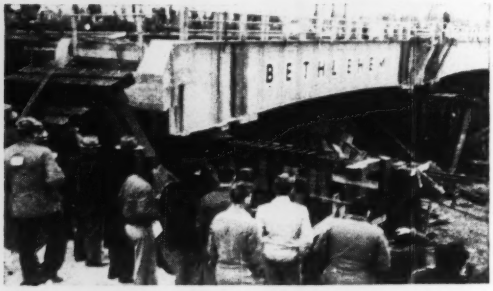
One more support system—for jacks

Trestle removal made space for new bridge. It was rolled sidewise into pl



DISMANTLING BEGAN at 4:30 A.M., with removal of track at both ends. This picture was taken at 1 p.m. Hoists an outer-track bent out of way.

1:30 P.M.—Last temporary-trestle stringer burned off. Final bent was removed by 2 p.m. making full room for new bridge to roll into place.



3:15 P.M.—Half-way in and all goes well, the runner-roller-rail assemblies working perfectly. Note timber girder-web stiffening above rollers and adjacent jacking pads.

to transfer bridge load from rollers to permanent seat—was installed, as close to the erection (roller) bent as feasible.

In preparation for the first move (the half of the bridge having three girders) the contractor set seven 100-ton hydraulic jacks on each of the four transverse girder-support lines, two at exterior girders and three at the interior girder. Jacks were to be pumped in pairs, with an extra pump for the third jack at the interior. They would carry a total weight of 1,520 tons.

To provide for girder vertical reaction at jacking and roller-support points, webs were reinforced with vertical timbers bearing on flanges in those reaction lines.

Moving the bridge

Bridge moving was to be done by four two-drum hoists, each tied back to a deadman and operating one drum with 8500-lb. line pull through a six-part tackle. On the first movement the tackle was anchored to the opposite side and connected to the interior girder, as shown in the last picture.

Everything was ready by Sunday, Nov. 20. At 4:30 a.m. the Pennsylvania slow-ordered the day's light traffic and shunted it to westbound rails. Two 60-ton locomotive cranes began dismantling the eastbound half of the temporary structure. Working from the outer track they removed the inner-track bridge to the center, then removed their own track back to the ends.

By 2 p.m. the space was clear and a foreman signalled the four hoisting engines to try the gear. Some adjustments were necessary, but at 3:15 p.m. the haul began, progressing in short unison pulls with intermediate alignment-adjustment pulls by various engines. The pull took 30 minutes. Pennsylvania R.R. track crews immediately spliced rails, tamped ballast at the joints and put the final touches on alignment. Underneath, jacking crews went to work, raising the bridge, removing blocking over rollers and lowering away onto pin seats. The Pennsylvania had four-track service by 5:15 p.m.

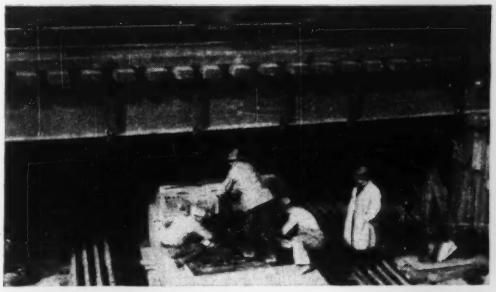
On Dec. 4 the second pull took place. Procedure was similar except for minor modification due to opposite direction of movement and due to the fact that only two twin girders were involved. For instance, to avoid overbalancing, projecting deck was not ballasted before movement. Total time on this move was 11 hours.

Project management

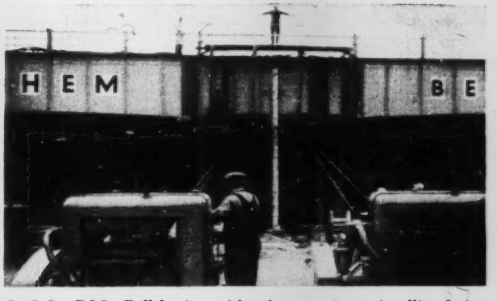
Superintendent for Brann & Stuart is R. D. McGilvra, who also is chief engineer for his employer. Amos Rogers is vice-pres. in charge of construction.

Contract for the bridge work was let by the New Jersey State Highway Department, which is building the bridge for the Pennsylvania Railroad, with federal participation. The two organizations cooperated in design. T. W. Pinard, now chief engineer of the Long Island R.R., being in charge originally, and L. P. Struble, chief engineer of the P.R.R. eastern region, at a later date. Spencer Miller, Jr. is the New Jersey state highway commissioner; E. W. Kilpatrick, acting state highway engineer; Morris Goodkind, bridge engineer.

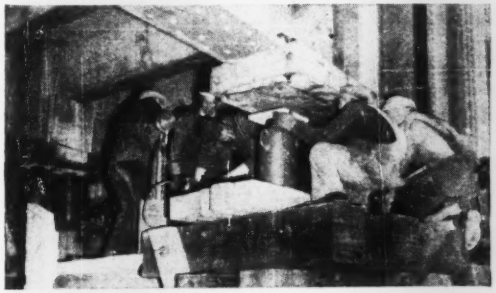
place, jacked up to take load off rollers, and lowered to prepared pin seats.



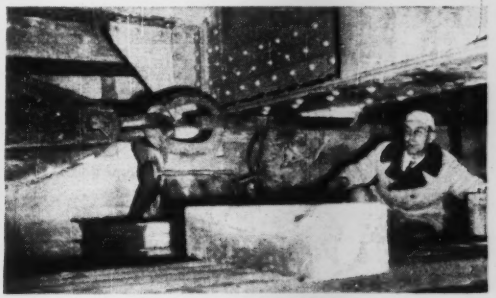
2:00 P.M.—Check line stretched on center-pier centerline, to control bridge movement. Note rails on which bridge will move. Temporary buffer will limit travel.



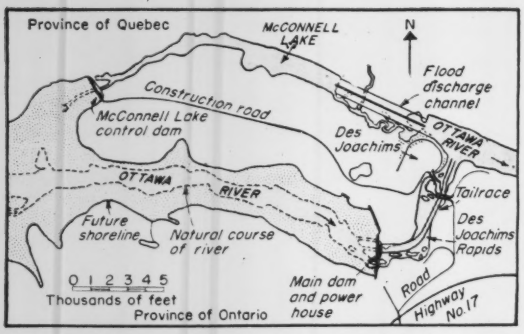
3:00 P.M.—Pull begins, with a foreman (top) signalling hoisting engines to haul in unison. Two engines shown pulling inner ends of two spans. Two more pulled outer ends.



3:45 P.M.—Jacking up a girder, to remove its load from rollers. This jack was hooked with another alongside and operated by one pump, so each would carry an equal load.

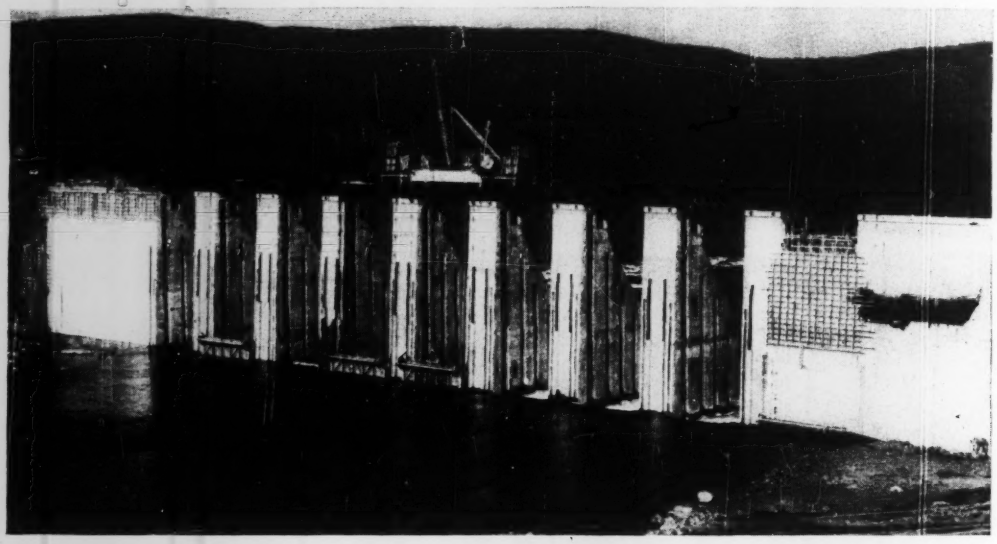


4:15 P.M.—Easing down onto pin seats. Supt. R. D. McGilvra signals jack valvemen as he eyes bridge to place. One hour later, trains began to roll over bridge. (ENR photos).



LOCATED at the head of Des Joachims Rapids, the main dam was closed, diverting flow through the control dam at McConnell Lake.

Des Joachims Dam Builders Deftly Divert The Ottawa River



RIVER FLOW was passed through sluices left in the main dam's solid gravity section. From a Bailey bridge spanning the sluices, gates were lowered by a custom-built gantry, and shutters—dropped into the gates—cut off flow so that sluices could be concreted shut.

McCONNELL LAKE DAM sluices will be concreted to spillway elevation behind the same closure equipment used on main dam.

SPECIAL GANTRY is here being reassembled atop McConnell Lake Dam for repeat performance. (ENR Staff Photos)

THERE ARE no more big pours left on the main dam at Des Joachims, $75,000,000 Ottawa River power project. Closure has been accomplished. The Ottawa is now diverted through McConnell Lake, and the Des Joachims Rapids—140 miles up river from the Dominion capital—are but a series of low pools below the 190-ft. structure that will add 358,000 kw. (480,000 hp.) to Ontario's fast-growing—but still inadequate—power supply.

Now, as the more tedious concreting around the headworks of the main dam continues, and blasting of 1,500,000 cu. yd. of rock transforms the once tortuous rapids into a 7,000-ft. tailrace, 175 ft. wide, engineers and construction men of The Hydro-Electric Power Commission of Ontario are starting final closure on the control dam at the head of McConnell Lake.

The closure problem, and how it was solved, is perhaps most outstanding of the many neat tricks of engineering performed by Ontario Hydro in its harnessing of the Ottawa at Des Joachims.

Natural diversion channel

Nature showed the way in site planning and river diversion. A look at the map indicates that where the river hit the rapids, flowing generally in an easterly direction, McConnell Lake (a thin strip of a pond about 2½ miles long) paralleled it to the north. This lake, with some channel improvement between its lower end and the river's bend below the rapids, made an ideal diversion channel.

The lake lies at the foot of the southern fringe of the Laurentian Shield, a glaciated range sweeping from the Canadian Rockies to northeastern Quebec in an arc that is quite rigidly followed by the Ottawa River through this portion of its length. Excavation in the McConnell Lake valley has uncovered potholes which would seem to confirm the fact that this was once the true course of the river.

A thin piece of low land separates the lake at its western end from the river. With a cofferdam across this neck of land to contain the river as it rose behind the main dam downstream, a 130-ft. control structure, 1,600 ft. long, was started in the dry at the location seen on the accompanying map.

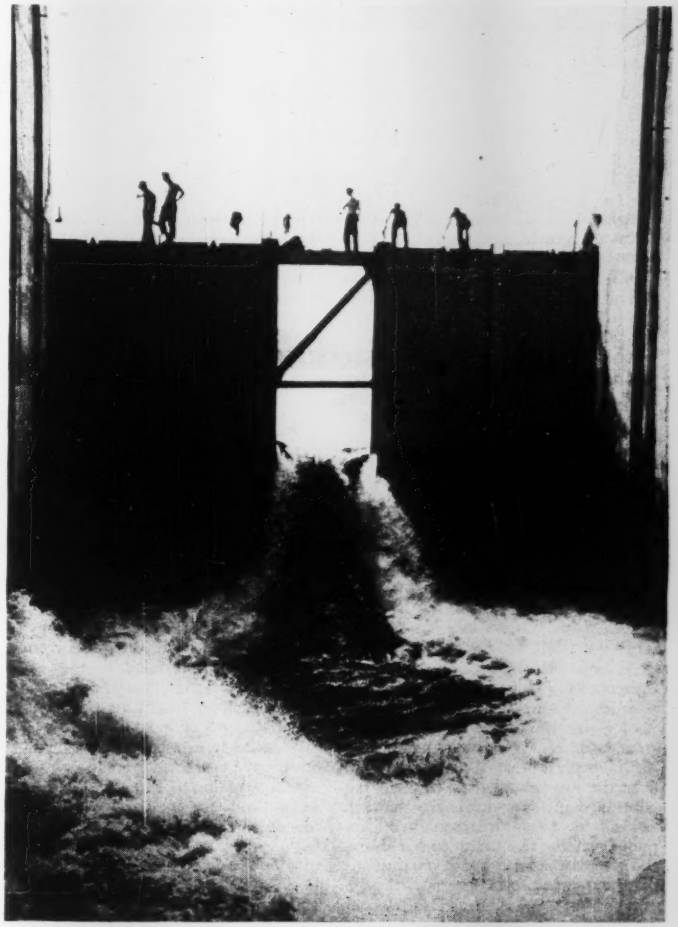
Three natural channels

Unwatering was required in construction of the main dam. River flow varying from 18,000 cfs, to nearly 150,000 cfs, in spring flood had to be provided for during construction. Here again, nature had helped by providing two small islands at the dam site which divided the river into Ontario, interprovincial and Quebec channels. By building cofferdams from bank to island and island to island, flow was diverted first through one channel, then another, and foundation concrete for the structure was placed on solid rock in the three alternately unwatered working spaces behind the cofferdam.

Sluices left open

Designed and planned for the peculiar closure operation, the dam rose in high lifts (40 and 50 ft. are common) successfully poured by HEPC; but nine 40-ft. wide sluices were left open, and the river was passed through these. Straight gravity sections at the ends of the dam and under the headworks section, and 20-ft. piers dividing the nine sluices were poured to completion from two 30-in. belt conveyors discharging to chutes and elephant trunks. The concreting method—high lifts, no cooling, construction joint details and drainage system—was nearly identical to that of the Stewartville Dam completed last year by the commission on the Madawaska River (see ENR Sept. 2, 1948, p. 64). Des Joachims does, however, have its own special materials-handling facilities, and these are to be described in a subsequent article.

With main dam concreting virtually finished, except for that in the headworks, the nine diversion sluices were ready for closure. To close them, some specially designed equipment was provided. This equipment consisted of a handling gantry together



TWO MORE SHUTTERS, dropped into this closure gate by the gantry riding above, cut off flow. Forms were then built for pouring concrete in the sluice.

with three steel unwatering gates. Each gate was made up of a 50-ton steel frame and five steel shutters weighing 4½ tons each.

A rather unorthodox quintuple-single Bailey bridge was erected across the top of the dam spanning the nine openings. Each truss of this bridge—five Bailey panels wide and one panel high—carried two rails on which rode a 75-ton gantry. The gantry—custom-built for the purpose—is, in effect, a train—a stiff-legged derrick on a carriage flanked on each side by tender cars. During the closure operation, the gantry shifts the gates from one opening to the next, places the gate from across the diversion opening on roller paths located on the upstream face of the dam and lowers the frame into the unwatering position.

To allow proper seal and suitable seating of the gate frame against the concrete faces, the gate rollers disappear into the gate. The gate frame is then dogged off, or hung by steel links from I-beams set in the dam near its top. The derrick then removes the shutters from the tender cars and lowers them into position in the gate frame. Rubber seals are included on the gate frame and shutters to cut the leakage to a minimum. The three gates are provided to enable a continuous cycle of operation.

All nine sluices are at the Ontario end of the dam. Due to low flows, it was possible to pour one sluice in the dry prior to closure operations.

The other eight had to be unwatered by the water-tight gates, behind which formwork construction and concreting could proceed. In all, there were fifteen pours scheduled for the closure at the main dam. These pours varied from 2,000 to 4,000 cu. yd., and brought concrete in all unwatering sluices up to El. 440 from the foundation pours, some of which were as low as El. 385. Pouring of concrete in these sluices from El. 440 to El. 505 (top of dam) was done in the dry.

Diversion accomplished

As this closure process continued from sluice to sluice, pour by pour, pool level above the dam rose. As the pool rose, the cofferdam built upstream from McConnell Lake dam was blown, so that water could spill over the divide and flow through the control dam and diversion channel. Backed up to an increasingly higher pool level by the main dam closure, the river finally did break out into its diversion channel as it reached El. 410.

Then on September 15, with most of the flow of the Ottawa diverted through McConnell Lake, the last remaining open sluice in the main dam was closed. When, at 2:10 p.m. the last shutter was dropped into the temporary sluice gate, the Des Joachims Rapids ran dry, leaving behind deep pools and high, hard rock formations indicative of the blasting to be done in excavating a smooth-floored tailrace 30 ft. deep.

With all 18,000 cfs of the low fall flow diverted through McConnell Lake, the pool level remained constant at about El. 428 (approximately 7 ft. below the elevation of concrete in the headworks section) until such time as the closure equipment could be dismantled at the main dam and re-erected on the McConnell Lake dam ready for final closure.

This closure operation started early in November and will continue in the same manner as on the main dam. Every effort will be made to speed the progress of the final closure in order that this operation will be completed, or nearly so, by the time the spring flows arrive. These flows will be depended upon to fill the remainder of the 1,200,000-acre-ft. pond which will extend upstream 57 miles, with widths varying to 2 miles. Also, the construction of the headworks section, necessarily slow because of the many small pours and much intricate formwork about the penstock intakes, will be expedited in order that progress of final closure will not be retarded owing to the possibility of the rising headpond overtopping the concrete in this area.

Closure equipment

The equipment, which performed so well in shutting off flow through sluices in the main dam, was fabricated expressly for use at Des Joachims. However, the fact that it will have two uses here and then be used 60 miles upstream at the Hydro's La Cave project lends significance to its design and operation.

Des Joachims is the largest of three projects Ontario Hydro has under way on the Ottawa as part of its $850 million postwar expansion program; La Cave and Chenaux are respectively 60 miles upstream and downstream.

With its 130-ft. head feeding eight units through 22-ft. diameter steel penstocks, Des Joachims power plant will put out 358,000 kw. at 60 cycles for 230-kv. transmission to the Hydro's Southern Ontario System.

Construction began in the fall of 1946, and the first four units are scheduled to go into service next July, with all eight operating by the end of 1950. Over 22 miles of Canadian Pacific Railway line were relocated and 12 miles of highway rerouted above the dam where 11,000 woodland acres had to be cleared.

Three construction camps hold some 2,500 workers presently employed at the job, which totals over 3,000,000 cu. yd. of rock excavation and placing of 890,000 cu. yd. of concrete (the main dam and headworks alone require 489,000 cu. yd.).

The Hydro-Electric Power Commission of Ontario is, itself, performing the major portion of the work at Des Joachims. Size of its present program has led the commission of late to let out portions of its work. Thus, McConnell Lake dam is being built by Atlas Construction Company Limited, Montreal, under supervision of Commission engineers. Harco Construction Limited, Toronto, is excavating a 3,900-ft. portion of the tailrace channel and Dominion Bridge Company Limited, Montreal, fabricated the closure gates and gantry.

Designers—builders

The Des Joachims project was designed and is being built under the general supervision of R. L. Hearn, general manager and chief engineer of The Hydro-Electric Power Commission of Ontario; O. Holden, assistant general manager—engineering; J. R. Montague, director of engineering; E. T. Ireson, generation engineer; and J. S. Crerar, project engineer in charge of design. Construction of the project is under the direction of D. Forgan, director of construction, and G. Mitchell, generation construction engineer, with A. A. Richardson as project manager at Des Joachims and W. M. Hogg, senior resident engineer.

Aggregate Testing

An evaluation of the effect of soft sandstone when present in coarse aggregate has been reported by two researchers for the National Sand and Gravel Association, Stanton Walker and Delmar L. Bloem, respectively director of engineering and assistant director of engineering.

Results of the tests showed:

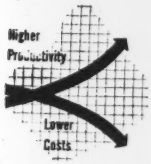
1. The use of soft sandstone reduced the modulus of elasticity and flexural strength about 0.33 percent for each percent of sandstone used in place of hard gravel.

2. The use of soft sandstone had no detrimental effect on the compressive strength of concrete.

3. The soft sandstone caused moderate reductions in resistance of concrete to freezing and thawing. However, even when the sandstone constituted 100 percent of the coarse aggregate, the resistance was not exceptionally bad.

The sandstone tests supplemented work on the effects of soft particles and shale on concrete reported earlier.

Building a research city is a big assignment, even for DuPont, but . . .



Construction Management Does the Job

FAITH in an ever-growing research program on the part of E. I. du Pont de Nemours is taking concrete form these days, with the construction near Wilmington of a $30,000,000 addition to its experimental station.

Adjacent to the company's present station on Brandywine Creek, 27 buildings are being erected. The new section spreads over a 55-acre area that previously was half of an eighteen-hole golf course.

Eleven buildings will house laboratory and semi-work research activities, and the other buildings will house services. Varying from one to five stories in height, the structures are of both steel frame and reinforced concrete. Exterior finish is red brick which rises unconventionally from below grade to give the buildings an appearance of all-brick construction.

Within the attractive structures there will be 633,000 sq. ft. of floor area. Laboratory rooms will total 158. A study was made to develop an ideal laboratory room, the result being a two-man unit 19 x 25 ft. in plan, with two 10-ft fume-collecting hoods and two complete sets of services. Ventilation is installed so that air conditioning may be added later.

It is Du Pont's purpose to devote part of the enlarged laboratory to basic research not necessarily related to the company's products, and to devote the remainder to the development of new chemical products and processes.

From a construction standpoint, the buildings, taken individually, are not unusual, but the whole job is large and complex, and two overall features command attention: (1) The organization of the job, particularly with respect to handling and processing of materials; (2) the job's excellent construction safety program. These points are discussed in separate articles below.

Construction quantities

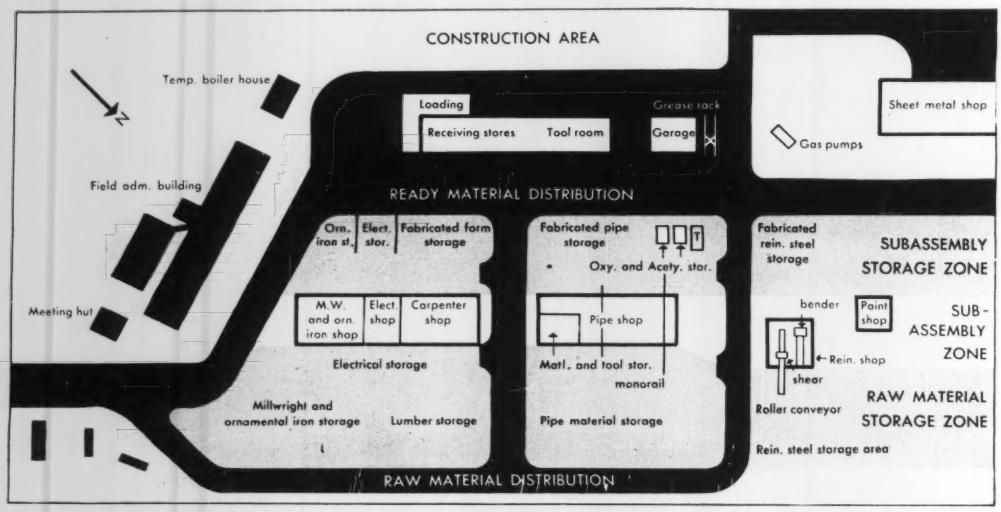
In addition, several quantities give an idea of the work. Earth excavation totaled 227,000 cu. yd., rock excavation 87,000 cu. yd.; 5,000,000 brick and 1,200,000 tile go into the work, as well as 40,000 cu. yd. of concrete, 3,350 tons structural steel and 1,700 tons reinforcing steel.

Underground utilities include 1.3 miles of steam and condensate lines, 4.7 miles of water lines; 2.1 miles of gas, air and nitrogen lines, 5.1 miles of sewers and 11 miles of electric cable.

Work began in mid-1948, and is expected to be completed by the end of 1950. Peak employment on construction was 1,700 men in September 1949. The company has let more than

half of the work to specialty contractors. About 60 contractors hold about 90 separate contracts. The remaining work, performed directly by Du Pont, includes carpentry, concrete work, reinforcing, rigging, transportation, some earthmoving and sewer construction.

At the site, work is under the direction of R. K. Mason, field project manager and G. E. Bubb, assistant. F. H. Mackie is manager of the construction division and Granville M. Read is chief engineer of the Du Pont engineering department in Wilmington, which is responsible for administration of all phases of the project. Voorhees, Walker, Foley & Smith, New York, are architects.



Materials go through on-job factory

Management, in the most efficient industrial sense of the word, is the keynote of all construction operations at the new Du Pont experimental station. The management methods are most apparent in job arrangements for material processing and flow, and for construction services.

Construction plant facilities are set up to eliminate waste motion, both in the flow of materials from yard to installation and in the supply of utilities to the work.

Material flow is set up like that in a mass-production factory. Raw pipe, reinforcing rods, lumber and other items come to the site, are processed through fabrication and sub-assembly stages and finally go into the building. Each sub-assembly shop is placed so that materials move through it in a straight line, from raw storage to fabricated storage. As an added feature, the movement through the shop and storage area is downhill.

Most raw storage yards are directly accessible to supply trucks, and all sub-assembly storage yards are accessible to internal-transportation trucks.

Controlling the flow

Material control goes hand-in-hand with the efficient sub-assembly shop layout. Shop work orders are scheduled well in advance, based primarily on the demands of construction schedules, but also on the availability of materials. Accurate knowledge of material availability stems from the Du Pont company's experienced expediting force.

The shop area is to the east of the construction site, adjacent to a service road and the employees' parking lot. Raw material shortage is at the extreme eastern end (except for sheet metal, which is stored at the sheet metal shop). Separate yards are outlined for millwright and ornamental iron storage, electrical, lumber, pipe and reinforcing steel storage. Proceeding westward (see diagram), the materials flow into their respective shops. In the electrical shop, conduit is cut and bent, junction boxes and switches are attached, and some wires are pulled. In the carpenter shop, concrete forms and other items are fabricated on jigs, larger pieces are pre-cut, and special wooden items are built. In the pipe shop, various steamfitting and plumbing sub-assemblies are prepared from uncut lengths.

Cheaper to bend on job

Most reinforcement steel cutting and bending is performed in that shop. A testimony to the efficiency of this shop is the fact that Du Pont records show a reinforcing steel cutting and bending cost saving of 1½ cents per pound, compared to prices offered for fabrication in shops of suppliers. There is no labor union restriction on cutting and bending practice in this area, and reinforcing iron workers get $2.40 an hour.

Next is the paint shop, which needs no outside storage.

Most of the fabrications and sub-assemblies emerge from shops to their respective storage yards singly or in bundles that can be loaded into trucks for removal to the buildings. For some types of materials, buildings are provided for protective storage.

Materials that do not go into sub-assemblies are stored initially in the receiving and stores building, logically located westward across the haul road from sub-assembly storage, one position closer to actual construction operations. Tools also are stored in this building. The garage, for repairs and preventive maintenance to vehicles, is alongside the store and tool building. (Routine maintenance takes place at night, so that a maximum number of vehicles can be kept rolling in the daytime.) Next northward are the gasoline pumps and oil drum storage, and beyond is the sheet metal shop, from which delivery generally is made directly to trucks for transport to build-

ings. A contractor's area, west of the sheet metal shop, is set aside for shanties and equipment. Contractors also use some of the shops mentioned above—pipe shop, paint shop and sheet metal shop.

With the foregoing set-up it can be seen (diagram) that the materials that are ready for delivery to actual construction in buildings are conveniently situated with respect to the work, and that the intermediate stages are out of the way. Thus, by going no farther eastward than the sub-assembly storage zone, the builders can obtain all materials that go into the work.

By providing a truck pool (there are 25 trucks working), Du Pont forces are able to control the final step of material flow, reducing the chances of confusion that might result if each contractor were doing his own hauling.

It is highly important that fabricated materials be transported to the right one of 27 buildings. With so many buildings and so many men on the job, it is conceivable that a bundle of fitted pipe could be lost in the wrong building for many days. The direction of material is controlled basically by the work order, which states not only what is to be made up but also where it is to go. When an item leaves the sub-assembly zone, it is identified by building number, floor number, and by reference to the plan. Pipe and reinforcement bundles are tagged, fabricated forms and metal work are marked with paint. Then the truck driver, acting on instructions, can pick up the correct item from storage and take it to the right place.

In addition to a convenient layout for material flow, the job also is well served by utilities. A temporary 4-in. fire and domestic water system provides outlets at each building site. Drinking fountains are located in all construction areas as well as in offices and shops. Field toilets are connected to the Wilmington city sewers.

Compressed air for construction operations is supplied through a 4-in. pipe system served by a 1,200-cfm. electrically-driven compressor stations in the middle of the area. Water and air pipes are buried in shallow trenches. In addition, overhead telephone and electric services are available throughout the construction areas.

The men who are directly responsible for the smooth flow of materials are C. A. Hempstead, planning superintendent, and L. S. Grogan, field superintendent, both employees of Du Pont.

SAFETY DEVICE. Instead of taking chances on tumbles down steep banks, DuPont built steps with hand rails.

Safety instruction pays off

Tightly interwoven with all phases of management on the Du Pont experimental station job is the safety program. Safety is sought everywhere, and the results are to be found in the record: an accident frequency rate of 0.5 per million man-hours. This record was made by Du Pont employees; contractors' safety also is good.

How do they do it? By using every tool in the safety engineer's kit: safety handbooks for contractors and every man on the job; weekly safety meetings on company time; individual safety discussions; required use of safety equipment; vigilance against any and all unsafe conditions.

A safety supervisor keeps the program continuously alive—an important point. With his two assistants, he has absolute authority to correct unsafe conditions. This authority extends to the work of the contractors and subcontractors, pursuant to terms embodied in Du Pont's contract form. These men make daily checks on conditions. If they see an unsafe condition they can stop work, or pull men off other work to correct the condition. There also is a weekly general safety inspection, participated in by the safety and fire protection men, with all top supervisory personnel on a rotating basis. In between times any supervisor can require immediate action in favor of safety.

As to the individual on the job, when he starts work he receives a 52-page safety booklet; in addition the safety engineer and his foreman spend a half hour orienting him in the safety aspects of his assignment. When he takes up a new task the foreman instructs him further. Each Monday the man and his fellow workers meet with the foreman, who gives the group a 15-minute talk on an aspect of safety. This talk has been outlined by the safety supervisor.

In addition, at least once during each month the man has an individual talk with his foreman, who reviews all the safety angles of the man's task. Safety instruction by the foreman frequently involves demonstration of safe practices. Moreover, once each week each foreman has a similar safety talk with his craft superintendent. The weekly contact occurs all the way up the organizational ladder.

The program of weekly individual contacts up and down the line, plus safety talks whenever a man goes on a new task, is called S.T.A., or Safety Task Assignment. Based on the idea that "safety is most frequently achieved by dropping the right word to the right man at the right time, and by doing so often enough," the philosophy of Du Pont's S.T.A. is:

"Any employee of whatever supervisory level on the occasion of assigning any work, job or task to any man or group of men, shall, in each instance, give sufficient caution, admonition or instruction with the assignment to adequately provide safety in the operation." It is Du Pont's feeling that the individual foreman is the key man in the whole safety program on the job.

Safety equipment mandatory

Referring back to the handbook that each man receives, numerous items of safety equipment are described and made mandatory for pertinent operations. Some of these, like safety shoes and hard hats, are sold to the men at cost. Other items, like goggles, are checked out individually to the men.

One other safety handbook is issued by Du Pont. This is entitled, "Safety Information and Instructions for Contractors Entering into Contracts with E. I. du Pont de Nemours & Company." The introduction states, "This book is made available to you as an interpretation of the safety clause in your contract."

In general, the book and its supporting contract clause impose upon the contractor a safety program identical with that for Du Pont itself. The contractor also agrees to abide by the authority of the company's safety supervisor.

On the Du Pont experimental station, K. L. Stevens is safety supervisor. J. A. De Luca is safety superintendent for the entire Du Pont construction division.

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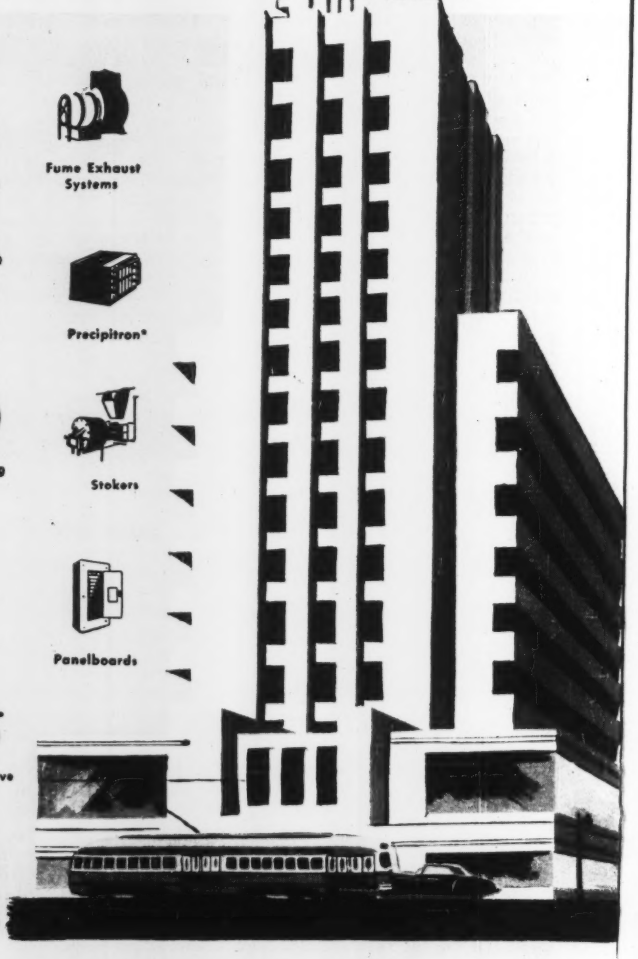

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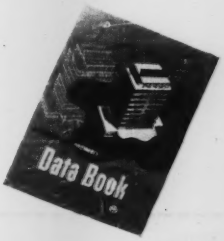

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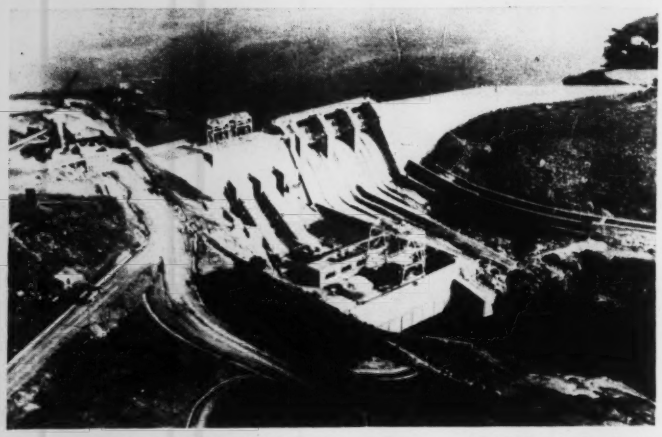
DEVELOPMENTS ABROAD



NEW BRAZILIAN POWER PLANT—This 20,000 kw., $6,500,000 hydro-electric dam and power plant has just been opened near the flourishing textile city of Americana, Brazil. It was built by the American & Foreign Power Co., Inc., to serve a rich section of the state of Sao Paulo. Technical supervision was by Ebasco International Corp., New York. This plant, to serve an area of 40,000 square miles, is the fourth of four such installations developed by American & Foreign in Brazil, the four plants having a combined capacity of 256,000 kw. Most of the money for it came from the U. S., partly by an Export-Import Bank loan. The company has planned a new power expansion program calling for the expenditure in Brazil of about $63,000,000 in the next ten years. (Acme Photo)

Highways

England—In connection with the special Roads Act, the Ministry of Transport reports that, in all, five new trunk roads have been approved. The time and speed of any work to be undertaken under the act depends on the resources in men and money that will be made available from time to time in accordance with the economic situation.

About 1,000 miles of motorways are planned. In addition, there are plans for 200 miles of main streets into and out of London, and there are to be corresponding developments in the other large cities of Britain. And a large amount will be spent to bring the rest of the roads to a reasonable standard.

The estimated total cost of the 10-year program is about 600,000,000 pounds.

South Africa—Richard Costain, Ltd., of London, is to begin work soon on the construction of the Hunyanipoort Dam about 20 miles from Salisbury in southern Rhodesia, Africa. It will have a storage capacity of about 55,000,000 gal., the reservoir covering about eight square miles. The dam is needed for irrigating large farming areas.

Mexico Stresses Irrigation

Mexico will stress irrigation in her 1950 public works program, said Adolfo Orive Alva, Secretary of Hydraulic Resources, after a tour of regions needing that type of public works. This work will feature large dams and canals in Chihuahua and Sinaloa States, the official said.

This is part of President Miguel Aleman's program to increase agricultural production. Costs of these works will be covered from the $65,000,000 domestic loan, which the President has been authorized by the national legislature to float in the form of a bond issue to be handled by the Bank of Mexico. These bonds are 50-year, at 6 percent annual interest.

Airports

Italy—About $1,400,000 from its counterpart funds will be used by Italy to improve its civil airport facilities, especially the Capodichino field near Naples and the Ciampino field near Rome. These airports will be unusually busy during the 1950 Holy Year when several million visitors from all parts of the world are expected to visit Italy.

Most of the funds will be used to finance the development of the Capodichino airport which will serve as a weather alternate for Ciampino. Completion of the project will permit Capodichino to be classified as a limited class B airport, and will furnish adequate air facilities to the industrial capital of southern Italy. The airport will be provided with a new asphalt-paved runway and taxi strip, aircraft parking apron, control tower and administrative building, in addition to improved night lighting equipment and air and ground tele-communications facilities.

Colombia—Work on the international airport at Leticia, Amazonas, is making steady progress. Four runways of 3,280 ft. each are planned or in construction. The total cost of runways and installations is estimated at one million pesos. Engineering work is being supervised by air force officers and controlled by the Oficina de Aeronautica Civil.

British Trade Fair

England—About 3,000 manufacturers are expected to exhibit in Britain's "Shop Window"—the British Industries Fair—next May. The primary object of the fair is the development of Britain's export trade, and dollar-earning exports. Only manufacturers whose goods are produced within the United Kingdom may exhibit.

Heavy industries, with civil engineering equipment particularly prominent, will be concentrated at Castle Bromwich, Birmingham, while in two great London halls, Olympia and Earl's Court, the lighter products will be on show. There will be a large area at Birmingham to accommodate a special display of a civil engineering contractors' plant.

Power

Italy—An additional 50,000 kw. of steam generating capacity at the Genoa plant of the Societa Edison—to help meet the electric power shortage in that region—has been approved by the Economic Cooperation Administration.

The project will cost about $8,400,000, including $6,169,000 in ECA assistance funds for a turbo-generator, boilers and accessory equipment. Last April, ECA approved an authorization of $6,000,000 for a 50,000-kw. addition to the same plant.

Shortage of power, ECA said, is a major limiting factor in Italy's efforts to expand industrial production as part of the recovery program under the Marshall Plan. Many industries are now forced to shut down three days a week.

Low water supply at hydroelectric plants has been largely responsible for the continuing shortage. ECA

officials explained that the Genoa project is part of a program to bring Italian hydro and steam capacity into better balance.

Housing

Egypt—Billner Vacuum Concrete, S. A., Philadelphia, Pa., has announced that it will supervise the first use of pre-cast concrete in multi-story apartment house construction in Egypt in the building of a housing project at Cairo. Karl P. Billner, president of the firm said the organization will direct construction of 80 four-story apartment houses in Heliopolis, a Cairo suburb. He explained that concrete slabs would be used in the same way as structural steel. That is, beams, girders, floors and roofs of pre-cast concrete would be assembled in much the same way as for a steel frame structure. Riveting, a time-consuming operation in steel construction, is eliminated in the use of precast concrete.

Foreign Briefs

Rail Equipment for Holland—New American equipment for the Netherlands Railways will be built and shipped next year. Westinghouse Electric International Co. will furnish control equipment, gears and pinions, and auxiliary equipment for 25 large electric locomotives. Baldwin Locomotive will supply main truck parts and design information for trucks and cabs. F. Q. den Hollander, president of the railways, is in this country now to inspect the U. S.-built equipment and to survey American rail operations.

Puerto Rican Hospitals—The Hospital Construction Fund of Puerto Rico has $2,501,000 available to match federal funds in accordance with the law recently passed by Congress authorizing federal aid for hospital construction up to two-thirds of the cost.

Competition for Designs—British architects may now enter a competition for designs of prestressed and reinforced concrete bridges for roads. The first prize is 500 pounds. Applications for information should be made in writing to the Cement and Concrete Association, 52 Grosvenor Gardens, London, S. W. 1, England, accompanied by a postal note for one shilling. Designs must be submitted before May 31, 1950.

Brazil—The government is seriously considering the construction of a new railway link between the Itabira iron mines and the port of Aracruz. Economists are urging the new link to make possible a heavy increase in exports from the mines.

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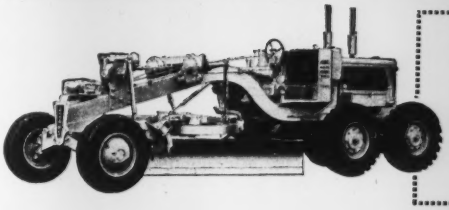

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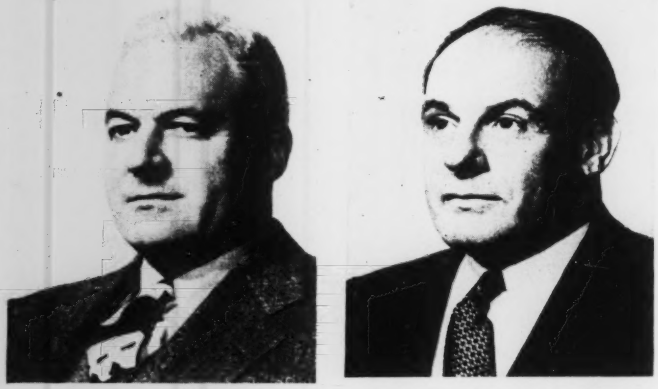


Donald B. Adams, left, has been elected chairman of the board of directors of Thompson-Starrett Co., Inc., New York City, and J. R. Van Raalte, right, is the new president. Mr. Adams was president and Mr. Van Raalte, executive vice-president of the 49-year old construction firm. General Adams was in the Corps of Engineers for 30 years. He served in both world wars. In the last one he was responsible for all military construction in Northern Ireland, North Africa and in the Naples area, before going on duty with the General Staff at Washington. Mr. Van Raalte, who is 54, was educated at Dartmouth College, and before joining the company in 1944, he was in real estate and construction work in St. Louis, Mo.

Clarence R. Andrews, 67, civilian engineering consultant to the District Engineer, Corps of Engineers, Chicago, has retired after 32 years of service. He was closely associated with the completion of the Illinois Waterway as a navigable artery between Lake Michigan and the Mississippi River. For his service during World War II Mr. Andrews received the exceptional meritorious service award, the highest Army civilian decoration.

James L. Ferebee, chief engineer and general manager of the Sewerage Commission of Milwaukee, Wis., and of the Metropolitan Sewerage Commission of Milwaukee County since 1930, will retire on April 2, 1950. He was principal assistant engineer for the commission from 1915 to 1923 and then became a sewer contractor. In 1925, he was appointed commissioner of public works of West Allis, Wis.

Raymond D. Leary, a civil engineering graduate of Marquette University in 1930 and a former employe of the commission and at present plant engineer for the Heil Co., was appointed acting chief engineer and general manager and will become chief engineer and general manager next April.

New managers for the Portland and Seattle districts for the Guy F. Atkinson Co., are: **H. S. Booth**, who has been the company's project manager for Oregon, Washington and California, becomes Portland district, succeeding **William E. Hoy**, who becomes district manager of the Seattle office.

Lawrence A. Fletcher has been appointed assistant director of the Department of Public Works, Jamestown, N. Y. He is a graduate of Beckley College and has been with the department for five years. Previously he was with the Chautauqua County highway department for about 14 years.

Albert A. Miller has retired as chief engineer of maintenance of way for the Missouri Pacific Lines, where he has been employed for 40 years. He served in various positions in Kansas City and Poplar Bluff, Mo., and Little Rock and Wynn, Ark., before going to St. Louis in 1938.

William E. Hoy, district manager for the Guy F. Atkinson Co. at Portland, Ore., has been transferred to Seattle, Wash., as manager of a new district office. Before joining the San Francisco, Calif., construction firm, he was with the Corps of Engineers at Seattle and overseas. Hoy has been succeeded at Portland by **H. S. Booth.**

John Jones of Durham, N. C., has been assigned by the sanitary engineering division, North Carolina State Board of Health, to the Transylvania-Henderson County health district where he will serve as assistant sanitary engineer, with headquarters at Hendersonville.

Walter M. Koscielniak, civil engineer of Utica, N. Y., has gone with the U. S. Bureau of Reclamation as a civil engineer at Grand Coulee Dam in Washington state. He is a graduate of Syracuse University and served with the Army Engineers in World War II.

George G. Ashton of Villa Park, Ill., has been appointed superintendent of bridges and buildings for Milwaukee, Wis., to replace Manuel Cutter, retired. Mr. Ashton was formerly an engineer employed by the Burlington Road.

George Winzler has been named resident engineer for a $2,000,000 Eureka, Calif., water and sewage project by Koebig & Koebig, Los Angeles consulting engineers. He was formerly city engineer of Eureka. Ground was broken in September on a 20,000,000-gal. reservoir as the first stage of the project.

Warren J. Vinton, who helped plan the government's three Greenbelt, Md., housing developments, has been appointed to the newly-created post of first assistant commissioner of the Public Housing Administration. He is a graduate of the University of Michigan.

Gordon R. MacGregor has been elected a member of the executive committee of the International Air Transport Association. He is a graduate in engineering from McGill University.

Election of **A. T. Waidelich** as vice-president in charge of research for The Austin Company is announced. He will supervise plant location surveys and economic and engineering reports, as well as research projects. He joined Austin as a structural designer in the New York district offices in 1936, and has been assistant director of research at the company's headquarters in Cleveland since 1941. He is credited with major responsibility for development of the H-section welded truss. He was graduated from Drexel Institute of Technology and taught structural engineering at Massachusetts Institute of Technology, where he received his master's degree. After traveling through Europe in 1930-31 on a

fellowship from MIT, he joined the faculty of Robert College at Istanbul, Turkey, as assistant professor of civil engineering, continuing there until he joined Austin in 1936.

George A. Hall, Jr., of Clemson, S. C., has been named administrative assistant to City Manager James R. Townsend at Greensboro, N. C., succeeding William H. Reeves, Jr., resigned. Hall obtained his engineering degree from Clemson College in 1947 and recently obtained a master's degree in public administration at the University of Michigan. While there he served as part-time research assistant with the Michigan Municipal League in Ann Arbor. Reeves resigned his post recently to train further at the Maxwell School of Public Administration at Syracuse University, Syracuse, N. Y.

J. Alexander Crothers, director, Port of Boston, Mass., has resigned to be executive director of the Delaware River Joint Commission of Pennsylvania and New Jersey. Mr. Crothers became director of the Port of Boston Authority in 1947 and previously was in charge of the Port of Camden, N. J., for the South Jersey Port Commission.

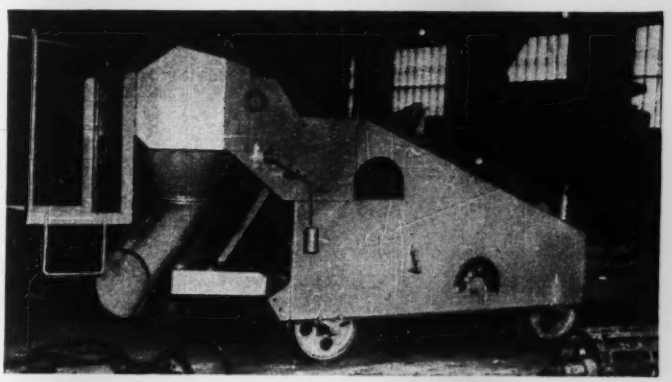
Richard M. Starns, Jr., consulting engineer, has removed his office to 2054 University Ave., Berkeley, Calif.

J. I. Thomas has been appointed project engineer for the Corps of Engineers on Pine Flat Dam, to be constructed on Kings River near Fresno, Calif. The dam will be 440 ft. high, the highest yet constructed by the Corps, and it will contain some 2,500,000 cu. yd. of concrete. Thomas is a graduate of the University of Colorado and goes to the Pine Flat Dam project from the Great Lakes Division in Chicago where he was head engineer.

Karl A. Bevins, traffic engineer for Georgia Power Co., has been named by Mayor Hartsfield to the newly-created post of Atlanta traffic engineer. He will help formulate plans to solve the city's traffic problems.

E. H. Dunmire, consulting engineer, announces the partnership association of **G. C. Ernst,** under the name of Dunmire & Ernst, Consulting Engineers, Lincoln, Neb. The firm will specialize in structures, water works, sewage treatment, irrigation, electrical systems, and appraisals. Mr. Ernst is professor and chairman of the department of civil engineering at the University of Nebraska.

FIELD AND OFFICE



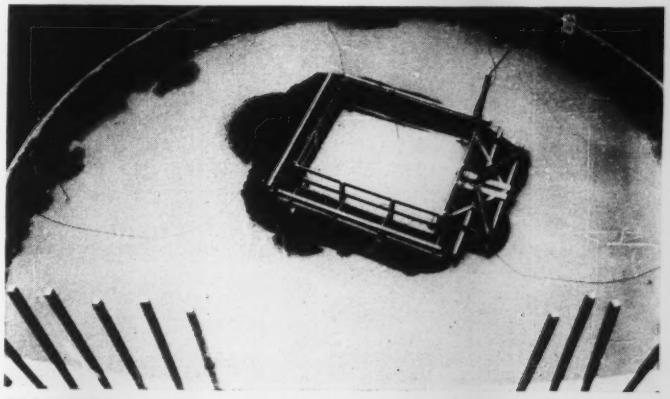
CONVEYOR BELT TRIPPER used in placing dam concrete has been remodeled for easier control and more efficient belt cleaning.

Swivel Chute, Bigger Hopper Improve Conveyor Belt Tripper

A standard-model concrete tripper was adapted for more efficient belt cleaning and chuting in the concrete conveying operation at Des Joachims Dam—under construction on the Ottawa River by The Hydro-Electric Power Commission of Ontario.

Before being revamped the device had a three-way chute, with a flop gate inside to control direction of discharge. Experience on the job found the gates often became jammed with concrete. Secondly, the original belt-scraping arrangement dropped cleanings back onto the clean belt as it left the tripper, and these cleanings were carried on to the conveyor's end to drop off as it doubled back.

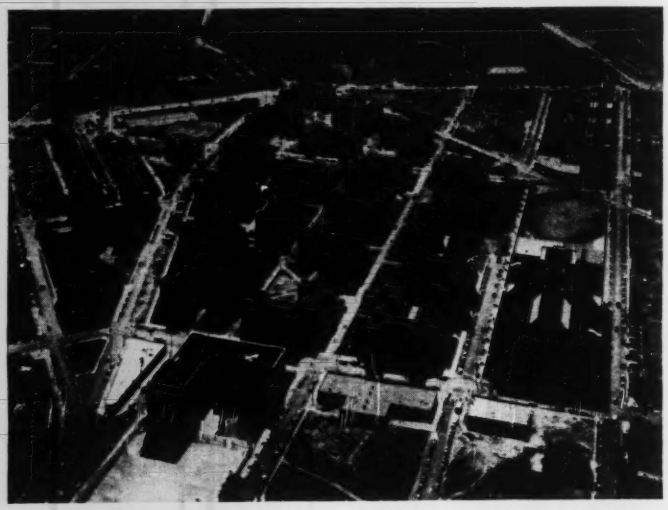
To remedy these faults, an easily aimed swivel chute was put on in place of the gate device, and the rear lip of the hopper above the chute was extended backward to catch cleanings from the scrapers as well as the main flow. Apart from avoiding a pile-up of cleanings below the head pulley, this last improvement prevents loss of those cleanings, which are intended to be an integral part of the mix. D. Hughes and Peter M. Allen, respectively construction superintendent and construction engineer for H.E. P.C., designed the improvements.



FORT PECK uses its own power to prevent ice formation in control shaft during Montana winter. Twelve 150-w. electric strip heaters on pontoon keep solid sheet of ice from forming in 50-ft.-dia. shaft of power tunnel No. 1. Corps of Engineers utilizes heater method, suggested by Henry Miller, consulting engineer, Chicago, to eliminate the need for putting a cover over the shaft while awaiting construction of permanent building.

MUNICIPAL AFFAIRS

Large Scale Housing—East and West



FINISHED AHEAD OF SCHEDULE—It took 17 months to build these 20 six-story apartment houses in Woodside, Long Island—three months less than had been scheduled. Built for the New York City Housing Authority by the George F. Driscoll Co. and Moccia Construction Corp., the project provides housing for 5,091 persons in 1,357 apartments. (Thomas Airviews Photo).

FIVE UNITS OF ELEVEN—The first five of 11 units of Metropolitan Life Insurance Co's $35,000,000 apartment house project at Parkmerced, San Francisco, are two-thirds complete. They are 13-story reinforced concrete structures. Architects are Leonard Schultze & Associates, New York, and Harry A. Thomson and A. L. Wilson, San Francisco. John J. Gould, San Francisco, did the structural design. General contractors are Starrett Bros. & Eken, New York. (S. F. Examiner photo)

Housing Developments

Economists' predictions of a record home-building year for 1949 are well on their way to confirmation. In the first eleven months of this year 937,000 new houses were started. This is in addition to $195,000,000 worth of public housing for the same period.

It is expected that President Truman will press Congress for legislation to spur construction of medium-priced housing for the benefit of middle income workers so that they may own their homes or get better rental accommodations.

Following are a few regional highlights in the housing field:

New York City—The City Housing Authority has promised a rent reduction on 3,416 apartments in four of the city's new housing projects for veterans in the low-medium-income bracket. The reductions, varying from $1 to $11 a month on apartments renting for from $50 to $79 monthly, were made possible by unexpectedly low interest rates obtained by the authority (2.622 percent) when it floated a $41,000,000 bond issue to finance the projects. The rent reductions will apply to apartments in Sheepshead Bay Houses, Woodside Houses, Eastchester Houses, and South Beach Houses.

In New York City a broadened slum clearance program and the construction of public housing for about 30,000 persons annually are probable results of the recent approval by New York State voters of a $300,000,000 addition to the state's $435,000,000 housing and slum clearance loan fund, and of companion measures to increase state subsidy payments to $25,000,000 a year.

All this eventually will mean housing for about 300,000 persons. In addition, Housing Commissioner Herman T. Stichman predicts that about 10,000 homes for lower middle-income families to house 40,000 will be built in 1950, and an equal number in the four following years.

Kansas City, Mo.—Two 3-story apartment buildings will be constructed on a 2-block frontage on the south side of 46th St. between Broadway and Pennsylvania Ave. by George W. Muller. The two units will total 72 apartment dwellings.

St. Louis, Mo.—Shelby Construction Co. has announced a $12,000,000 rental housing project in the Brentwood section. It will consist of about 1,425 units, of which 750 will be one-bedroom apartments. St. Louis has been allocated 5,800 housing units for a 5-year period under the federal housing program.

Houston, Tex.—City council has approved a co-operative agreement with the local housing authority which is expected to result in about $10,000,000 in low-cost housing being under construction in that city by next September.

Parking leniency for out-of-staters

It is said that Charlotte, N. C., Duluth, Minn., and San Diego, Calif. never issue parking tickets to non-resident drivers.

The following cities, according to the American Municipal Association, issue only courtesy or warning tickets: New Orleans, La., Norfolk, Va., Oklahoma City, Okla., Omaha, Neb., Seattle and Spokane, Wash., Des Moines, Iowa, Fort Wayne, Ind., Kansas City and Wichita, Kan., and Wilmington, Del.

In Buffalo, N. Y., 3,552 out-of-state cars were tagged during the first eight months of 1949. Of these 2,644 drivers have not paid their fines for parking violations.

Private Sewage Disposal

Regulations governing the disposal of sewage in the absence of public sewers have been adopted by the Maryland State Board of Health and are now effective in all counties, according to an announcement made jointly by Dr. R. H. Riley, director of health, and George L. Hall, chief engineer of the State Department of Health. The new rules apply to houses and other buildings supplied with water under pressure but not located where it is possible to be connected with public sewerage systems.

An approved private sewage disposal system consists of a septic tank from which the effluent is disposed of through an approved underground system. Raw or partially treated sewage may not be discharged into any lake, pond, river, bay or other body of water in Maryland.

The law also specifies minimum sizes of lots where both sewage disposal systems and private wells for dometic water supply may be installed and describes types of construction and suitable arrangement of such facilities for the adequate health protection of residents.

The regulations adopted by the State Board of Health are designed to provide residents of small communities and rural areas with health protection comparable with that in larger towns and cities where public water supplies and sewerage systems are available to householders. The provisions will be enforced by the state board and by local health departments throughout Maryland.

OBITUARY

Robert F. Logan, 45, chief engineer of the Southern Railway's Central Lines, died at Knoxville, Tenn., Dec. 7. He formerly was division superintendent at Richmond, Va., and had served at Yadkinville, N. C., Hattiesburg, Miss., Columbia, S. C., Danville, Va., and Manassas, Va.

Charles Francis Blakely, 57, civil engineer, who had been a divisional chief in the United States Patent Office for more than 30 years, died Dec. 3 in Washington, D. C. He had been chief of Division 25. He worked for a short time for the Union Pacific Railroad and went to Washington in 1914 with the Interstate Commerce Commission, transferring to the Patent Office three years later. He received his civil engineering degree in 1920 from George Washington University.

W. Walter Taggart, 69, Indiana State highway engineer, died Dec. 8.

Julius P. Heil, 73, founder and chairman of the board of the Heil Co., Milwaukee, and a former governor of Wisconsin, died recently.

Carl R. Dick, 65, a member of the board of directors, one of the founders and for many years, general manager of the Decatur Structural Steel Co., Decatur, Ill., died Nov. 28. He was graduated from the University of Illinois in 1907 in architectural engineering and served there as an instructor in structural design until 1910. He then went with the Decatur Bridge Co. which changed its name to the Mississippi Valley Structural Steel Co.

C. L. Dufort, 66, died in Montreal, Que., recently. He was formerly chief engineer for the Quebec Department of Colonization, in charge of roads and bridge building for the department.

Robert B. Kenrick, 85, retired civil engineer, died in Montreal, Que., Dec. 2. He was connected with the engineering departments of several Canadian railroads in the early part of his career, and in 1887 he joined the Dominion Bridge Co. Mr. Kenrick remained with that firm for 27 years.

James G. McBee, 63, retired instructor in the college of engineering of the University of Kentucky, died in Lexington, Ky., Dec. 1.

Emilio Pittarelli, 51, research engineer for the Otis Elevator Co., died in New York City, Dec. 1. He was a civil engineering graduate of the Royal Polytechnical Institute in Milan. He came to this country in 1924 and practiced civil engineering in private and public works and as a consultant in foundation and tunnel construction, including work on N. Y. subways. In 1939, and 1940 he was engineer in charge of foundation design for the N. Y. World's Fair.

John W. Moore, 85, who laid out the plans for the town of Anacortes, Wash., and helped build the original town, died recently in North Vancouver, B. C. He was a graduate in civil engineering from Tuft's College, Mass., and went to the Pacific Northwest in 1888.

Frederick J. North, 63, died at Halifax, N. S., Nov. 21. A native of England, he had been an engineer in railroad and gold mines operations in Manitoba, a provincial engineer there, and western manager for Milton Hersey Co. Ltd., consulting engineers. He was a lieutenant-colonel in both wars, in the Canadian army. For the last four years, he had been on the staff of the veterans' affairs department at Halifax.

Benjamin N. Richburg, 82, former railroad construction engineer and contractor, died at Charlotte, N. C., Nov. 20. He was roadmaster with the Durham and Southern Railroad at Durham, N. C., from 1929 until he retired two years ago. Prior to that he had been a contractor at Charlotte and general roadmaster of the Piedmont and Northern Railway at Charlotte, supervisor for the Southern Railway between Danville, Va., and Norfolk, Va., and between Salisbury, N. C., and Gastonia, N. C., and construction supervisor for the Seaboard Air Line Railroad between Norlina, N. C., and Richmond, Va.

William A. Mullin, 77, former engineer for Roy County, Mo., died Nov. 21.

R. Jackson Tippet, 68, New Haven, Conn., secretary of the Connecticut Society of Civil Engineers for 15 years, died Nov. 21 in New Haven. He was civil engineer for the Connecticut Company, transportation utility in New Haven.

Michael A. Gammino, 59, president of the M. A. Gammino Construction Co., Providence, R. I., died in Providence Dec. 2. He was president of the R. I. Road Builders Association.

ELECTIONS AND ACTIVITIES

John Carpenter, member of the engineering department, city of Ames, has been elected 1950 president of the Iowa section of the American Society of Civil Engineers. He succeeds Paul V. Roberts of Des Moines. Named vice-president was Prof. C. J. Posey, department of civil engineering, University of Iowa, Iowa City. Roy Clark, member of Clark, Nemmers and Spooner, Des Moines consulting engineers, was elected a director for two years and Prof. L. O. Stewart, head of the civil engineering department, Iowa State college, Ames, was re-elected secretary-treasurer.

First step toward a unification of all Iowa engineering clubs was taken in DesMoines, Nov. 17 when 42 district representatives of the Iowa Engineering Society approved a proposed change in the society's constitution. Under the suggested amendment to be voted on at the annual convention Feb. 14 and 15, members of other engineering clubs and societies would be eligible for membership in the Iowa Engineering Society as affiliates. The board of representatives made the following nominations for 1950 officers. The nominees will be voted on by letter ballot with the results announced at the February meeting: For president elect—A. F. Faul, Des Moines and Robert Casey, Fort Madison; for vice-president, Prof. H. M. Black, Iowa State college, Ames and Prof. H. Garland Hershey, University of Iowa City; for treasurer, Ralph Tuller, Des Moines and Fred Loy, Des Moines. E. F. Behrens of Des Moines, the present president-elect will become 1950 president.

An upstate New York meeting of about 100 public works officials of the American Public Works Association was held in Syracuse recently. Speakers and their topics were: John W. Drott, Jr., Drott Manufacturing Co., Milwaukee, Wis., "Sanitary Landfill Method of Refuse Disposal;" Herbert Spencer, The Asphalt Institute, "Fundamentals in Asphalt Street Maintenance;" Ira Elmer, commissioner of public works, Rome, N. Y., "Public Works and Private Gripes;" John Temmerman, city chemist, Rochester, "Phosphate-Salt, Ice and Snow Removal."

Robert O. Hilty has been elected president of the newly created Toledo-Lucas County Port Commission, Ohio. Other officers are Leslie E. Thal, vice-president; Charles G. Crom, secretary, and William C. Beckett, assistant secretary.

John F. Donovan, Chelsea, Mass., has been appointed executive director of the Mystic Bridge Authority, Massachusetts.

MAJOR MEETINGS

Conference on Industrial and Safety Problems of Nuclear Technology, General Electric Auditorium, 570 Lexington Ave., New York City, Jan. 10-12.

Canadian Construction Association, Mount Royal Hotel, Montreal, Que., Jan. 15-18.

Associated Equipment Distributors, Stevens Hotel, Chicago, Ill., Jan. 15-19.

American Water Works Association, N. Y. Section midwinter luncheon, Hotel Statler, New York, N. Y., Jan. 17.

American Society of Civil Engineers, annual meeting, Commodore Hotel, New York City, Jan. 18-20.

New York State Sewage Works Association, annual meeting, Hotel Statler, N. Y. City, Jan. 20-21.

National Sand & Gravel Association, convention and exhibit, Stevens Hotel, Chicago, Ill., Jan. 22-27.

National Ready Mixed Concrete Association, convention and exhibit, Stevens Hotel, Chicago, Ill., Jan. 22-27.

Conference on Polluted Irrigation Water, Auspices Environmental Health Study Section, Public Health Service; El Paso Health Dept., and Texas State Health Dept., El Paso, Tex., Jan. 27.

National Crushed Stone Association, convention and exhibit, Stevens Hotel, Chicago, Ill., Jan. 29-Feb. 2.

Midwest Materials Handling Conference, Technology Center, Illinois Institute of Technology, Chicago, Ill., Jan. 30-Feb. 1.

Association of Asphalt Paving Technologists, annual business meeting, Statler Hotel, St. Louis, Mo., Feb. 6-7.

National Association of Home Builders, Congress and Stevens Hotels, Chicago, Ill., Feb. 19-23.

American Concrete Institute, annual convention, Edgewater Beach Hotel, Chicago, Ill., Feb. 20-22.

National Council for Stream Improvement, annual meeting, Waldorf-Astoria Hotel, N. Y. City, Feb. 20-22.

Minnesota Federation of Engineering Societies, exposition, Minneapolis Armory, Minneapolis, Minn., Feb. 21-23.

Ontario Road Builders' Association, Royal York Hotel, Toronto, Ont., Feb. 22.

American Concrete Pipe Association, annual convention, Fairmont Hotel, San Francisco, Calif., Feb. 22-25.

Associated General Contractors of America, national convention, San Francisco, Calif., Feb. 27-March 3.

American Road Builders Association, annual meeting, Cincinnati, Ohio, March 6-9.

New Jersey Sewage Works Association, annual convention, Hotel Stacy-Trent, Trenton, N. J., March 22-24.

National Plastics Exposition, Navy Pier, Chicago, Ill., March 28-31.

EDUCATION AND RESEARCH

Scholarships — The Department of Landscape Architecture, Graduate School of Design, Harvard University, is offering a scholarship for the academic year 1950-51, of $600—equivalent to one year's tuition. Candidates must have received their bachelor's degree, or equivalent, within the last three years. College of engineering, Cornell University, has established freshman year scholarships worth up to $200 from a fund of $170,000 established under the will of Katherine Ward Burrell. The American Institute of Steel Construction will award ten annual competitive scholarships of $1,000 each in American colleges and technical schools. Objective will be to train engineers and administrators for the fabricated structural steel industry.

New Labs—A new engineering laboratory dedicated to the late Christian I. Gunness, formerly head of engineering at University of Massachusetts, Amherst, has been officially presented to the university. It will house the departments of civil, mechanical, and electrical engineering. At the North Carolina State College, Raleigh, the new engineering laboratories building is half completed and will be ready next May.

Extension—The Virginia Polytechnic Institute, Blacksburg, now has extension teaching quarters at Richmond, Norfolk and Danville.

Faculty News

Charles R. McCullough of Shreveport, La., and Mehmet E. Uyanik, a native of Turkey, have been appointed assistant professors of civil engineering in the North Carolina State College School of Engineering. McCullough received his master's degree at Purdue in 1948. Uyanik received his B.S. in civil engineering at the University of Illinois in 1942, his master's in 1943, and his doctor's in 1945.

Lawrence E. Goodman, instructor in civil engineering, Columbia University, has been appointed research assistant professor of civil engineering, University of Illinois, at Urbana-Champaign, Ill.

James G. Woodburn, professor of hydraulic engineering, is now chairman of the department of civil engineering in the college of engineering at the University of Wisconsin, has degrees from Indiana, Purdue, Michigan.

Arthur J. McNair has been appointed an associate professor and head of the surveying department in the school of engineering at Cornell University.

Edward J. Kimmick has been appointed professor in civil engineering at Illinois Institute of Technology, Chicago.

Prof. Henry F. Gauss has been appointed research professor of mechanical engineering at the University of Idaho. President J. E. Buchanan said the appointment was made to augment the research program of the college of engineering at the university. Professor Gauss is just completing extensive research on spark arresters for mechanical equipment used in timber. He is also known for his research on heat transfer through building insulation. He is the author of the book, "Thermodynamics for Engineers." In addition, Professor Gauss has been awarded several prizes by the Lincoln Arc Welding Foundation for his reports on arc welding in engineering education and research, and on arc welded threshing machines.

Clayton O. Dohrenwend, 1931 graduate of Rensselaer Polytechnic Institute, has returned there with the full rank of professor. He is to succeed Prof. LeRoy W. Clark as head of the department of mechanics. He has taught at Armour Institute, University of Connecticut, and Illinois Institute of Technology. Professor Clark, a 1906 graduate of R.P.I., has been on the faculty ever since then. He has done much consulting work in concrete and steel structures, and building operations and will continue such work.

Earnest William Steel, sanitary engineer for the Venezuelean government since 1946, will join the University of Texas faculty next February. He will be a professor of sanitary engineering in the civil engineering department. Before going to Venezuela, Steel did engineering work for the Rockefeller Foundation, 1922-1923; Texas State Health Department, 1923-1924; Waco, Tex., 1925; and from 1926 to 1945 headed the department of sanitary engineering at Texas A. & M. College. He served with the U. S. Army Engineers, as colonel, in 1943-1946, assigned to work with the Venezuelan government. He was graduated in civil engineering from Cornell University, and studied later in England. He has written widely on engineering subjects.

Notes on Legal Decisions

Summaries of decisions relating to construction prepared by I. Vernon Werbin, counselor at law and engineer, New York, author of Legal Phrases of Construction Contracts (McGraw-Hill)

Customs and usage

Evidence of custom is permitted for the purpose of clarifying the meaning of a contract where otherwise it is ambiguous or for supplying omissions in the agreement between the parties. It is not permitted for the purpose of contradicting the agreement which the parties have made or for the purpose of accomplishing an unfair construction of the contract.

Custom and usage are resorted to only to ascertain and explain the meaning and intention of the parties to a contract when the same could not be ascertained without extrinsic evidence, but never to contravene the express stipulations of the parties. If there is no uncertainty as to the terms of the contrast, usage cannot be proved to contradict or qualify its provisions. Usage is sometimes admissible to add to or to explain, but never to vary or contradict, either expressly or by implication, the terms of a written instrument or the fair and legal import of a contract.[1]

(1) Western Union Tel. Co. v. American Com. Ass'n., 299 N.Y. 177, 86 N.E. 2nd 162 (N. Y. Court of Appeals, April 20, 1949).

Construction of contracts

Where the language of a contract is plain and unambiguous, the court will enforce it in accordance with its terms, unaided by oral testimony. It is only where the contract is ambiguous that the court will receive extrinsic evidence to show that the parties themselves have adopted a permissible method of applying its terms.

Where oral evidence is admissible to alter the terms of a written contract, it must appear that the contract is incomplete and that the evidence sought to be introduced in no wise conflicts with the written instrument.

In determining whether or not any ambiguity exists that requires an interpretation of the contract, the whole contract must be considered and not an isolated part of it. A constract is not ambiguous just because the parties to it cannot agree upon a proper construction of it. A contract is ambiguous, only if it is reasonably and fairly susceptable of different constructions; it is not ambiguous if the court can determine its meaning without any guide other than a knowledge of the simple facts on which, from the nature of its language, its meaning depends.

The courts are not permitted to make contracts for party litigants, and are only empowered to construe the language and meaning of contracts entered into by the parties, as intended or understood by them. In the absence of fraud, accident, mistake, oral evidence is not admissible to vary, alter or contradict the terms of a complete and unambiguous written contract.[1]

A contract need not contain the details of every fact to which the parties are agreeing and is not indefinite merely because it may be difficult to construe. If the phrases used can be made certain by proof, that is sufficient.[2]

(1) Shipley v. Pittsburgh & L.E.R.R. Co., 83 F. Supp. 722 (U. S. District Court, March 8, 1949, and numerous cases there cited).
(2) Asher v. Ruppa, 173 F. 2nd 10.

Oral orders for extras

A building contract stipulated that the building was to be constructed in accordance with plans and specifications attached to the contract.

The contract contained the following provision: "If the owner shall upon written order signed by the contractor require any deviation from the said drawings and specifications or any additional or other work to be done to or than as described therein or any work therein described to be omitted, the contractor will carry out such requirement and perform the additional or other work in a substantial and workmanlike manner at such additional cost as shall be mutually agreed upon between the contractor and the owner."

The court held that the contractor could recover for work done at the owner's request even though such work was not authorized by a written order from the owner and signed by the contractor as provided for in the contract.

The court in it's opinion stated: "It is no objection that no written contract or order covered these items, if the additional work was mutually agreed upon by the parties or done under circumstances implying mutual assent. The contract is not of that character which the law requires to be in writing and so the parties could alter or modify by parol word of mouth the original written contract if such alteration or modification was supported by mutual assent."[1]

(1) Bonie v. Griffin, 40 S. 2nd 870 (Supreme Court of Alabama, May 26, 1949).

CONSTRUCTION REPORTS

Bids Asked—Low Bidders—Contracts Awarded

Compiled by Business News Department—Engineering News-Record, 330 W. 42nd St., New York 18, N. Y.

ELSIE EAVES, Manager — *J. A. MAHONEY, Reports* — *M. R. ROESSLER, Statistics*

WATER SUPPLY

BIDS ASKED

Tex., Galveston—B.A. 1/9—Galveston Co. Water Control & Imprvt. Dist. 11, Courthouse. WW. $40,000. Joe J. Rady, 811 American Fidelity Bldg., Fort Worth, engr.

LOW BIDDERS

Calif., Los Angeles—Los Angeles Co., 501 Hall of Records, Dec. 13, water sys. in Lindale St. County Waterworks Dist. 2, C.I. 1229, from N. P. Van Valkenburgh, 8609 San Vincente Ave., South Gate, **$104,330.** Est. $140,000. CD 11/22.

Conn., Hartford—Bd. Contr. & Supply, Water Bureau, Metropolitan Dist., 115 Broad St., Hartford, Dec. 8, Contr. 159, excavation and foundation work on Cedar Mountain Storage Reservoir, Alt. A, from Pane Constr. Co., 16 West Point Terrace W., **$84,100;** Alt. B, from Charter Oak Constr., Inc., 525 Main St., **$73,150.** CD 11/17.

Md., Hyattsville — Washington Suburban Sanitary Comn., Hamilton St., Dec. 14, foundation and piping for addn. filtration unit and reservoir, Willie School, near Laurel, Contr. 678-W, from Intercounty Constr. Co., 4720 Baltimore Blvd., **$102,665.** CD 12/15.

N. C., Southern Pines—Town, C. N. Page, mayor, Southern Pines, Dec. 13, modernizing WW treatment plant, filter plant, from Boyd & Goforth, Inc., Pineville Rd., Charlotte, **$104,700;** 4 mi. 10 in. watermain, from Zeigler-Cline Constr. Co., Fayetteville, **$98,357.** CD 11/29.

CONTRACTS AWARDED

La., Chalmette—St. Bernard Parish Water Dist. 1, Courthouse Bldg., 3.625 ft. 6 in. watermain, 110 water connection to homes, 9 six in. fire pluks, to John P. Mitchell, 633a Louisville St., New Orleans, **$28,300.** Bids 12/6, awarded 12/8. CD 12/8.

Tex., Houston—Archer Development Co., Electric Bldg., c.i. waterlines, facilities, vicinity Spring Branch, between Katy, Long Point and Campbell Rds., own forces, Approx. **$45,000.** Hilton & Coulson, 3821 Fannin St., engrs.

Tex., Kerrville—Cadillac Terrace, c/o Wayne C. Huddleston, Kerrville, c.i. waterlines, own forces. Approx. **$30,000.**

Tex., San Antonio—Wonder Homes, Inc., Majestic Bldg., Proj. 3, c.i. waterlines, to George Brombaugh, 710 W. Theodore St., Approx. **$31,000.** CD 12/14.

SEWERS, WASTE DISPOSAL

BIDS ASKED

Tex., Galveston—B.A. 1/9—Galveston County Water Control & Imprvt. Dist. 11, Courthouse, sanitary sewerage sys. $50,000. Plans deposit $15. Joe J. Rady, 811 American Fidelity Bldg., Fort Worth, engr.

LOW BIDDERS

Calif., Long Beach—Los Angeles Co. Sanitation Dist. 3, 1206 Maple Ave., Los Angeles, Dec. 14, 5.289 ft. 51- and 54 in. rein.-con. pipe, Long Beach Interceptor Trunk Sewer, Unit 4, Loma Ave. to Pacific Coast Hy., from Artukovich Bros., 7226 N. Atlanta Blvd., Paramount, **$178,580.** CD 11/16.

Calif., Los Angeles—Bd. Supervrs. Los Angeles Co., 501 Hall of Records, Dec. 13, 3.8 mi. 6 and 8 in. vitr. clay sanitary sewers in Ellis Lane, C. I. 1239, from Burch & Bebek, Inc., 283 Los Florez Blvd., Inglewood, **$104,007.** Est. $119,000. CD 11/23.

Conn., Waterbury—City, Bd. P. Wks., City Hall, Dec. 9, sewage plant, treatment facilities, equip., from F. H. McGraw Co., 780 Windsor St., Hartford, **$824,282.** CD 11/3.

Md., Towson—Baltimore Co., Court House, Dec. 12, 16,260 lin. ft. 6 and 8 in. vitr. clay sanitary sewers, manholes, etc., Contr. 176-S, and 5,020 lin. ft. 18- to 54 in. rein.-con. storm drains, Contr. 177-D, Windsor Terrace, near here, from Marsetco Constr. Co., 231 S. Exeter St., Baltimore, **$115,108.** CD 12/5.

Tex., Houston—City, M. H. Westerman, secy. City Hall 900 Brazos St. Dec. 7, sanitary sewers Deems St. and laterals, from Bruss Mitchell, Inc., 5304 Old Spanish Trail, **$64,337.** Est $93,000. CD 11/29.

●**Tex., San Antonio**—City, City Hall, Military Plaza, Dec. 17, Sect. 2, sewage plant, incl. grading, open drainage, sludge drying beds, return sludge lift from The Stevens Co., 924 Dallas St., **$289,081** est. approx. $150,000; Contr. 3, sewage disposal plant addn., misc. channel imprvs, structures, grading, drainage from H. B. Zachry Co., Box 2570, **$1,225,570,** est. $650,000. H. R. F. Helland, Frost Bank Bldg., engr. CD 11/16.

Wis., Thiensville—Village, Dec. 8, sewers, from Lloyd Kispert, R. 2, Green Bay, **$2905.-978;** sewage plant, from Feidt & Dreyer Constr. Co., 5503 W. Brooklyn Pl., Milwaukee, Zone 16, **$167,935.** CD 11/23.

CONTRACTS AWARDED

Tex., Houston — Archer Development Co., Electric Bldg., sanitary sewers, vicinity of Spring Branch, between Katy, Long Point and Campbell Rds., own forces. Approx. **$50,000.** Hilton & Coulson, 3821 Fannin St., engrs.

Tex., Kerrville—Cadillac Terrace, c/o Wayne C. Huddleston, Kerrville, sanitary and storm sewers, own forces. **$53,350.**

Tex., San Antonio—Wonder Homes, Majestic Bldg., Proj. 3, 40,700 lin. ft. 8- to 18-in. sanitary sewers, to George Brombaugh, 710 W. Theodore St., **$53,300.** CD 12/14.

Wash., Kittitas—Town, Town Hall, sewer treatment plant, to George Chicha, 512 Nora St., Spokane, **$85,961.** Bids 12/12. CD 12-1.

BRIDGES

BIDS ASKED

Tex., Fort Worth—B. A. 1/5—City, W. O. Jones, mgr., City Hall, repairing bridge, washed away by flood on Rogers Rd. and construct new approaches. $51,000. Plans deposit $5. Extended date, C. M. Thelin, c/o owner, dir P. Wks. CD 12/14.

LOW BIDDERS

Texas—State Hy. Comn., Austin, **Dec. 14,** bridges, approaches 1.229 mi. Hy. St. 49, F 365 (4), Marion Co., from Thomas & Ratliff, Rogers, **$192,930.** CD 11/25.

West Virginia—State Hy Comn., Charleston, Gauley River Bridge No. 1791, Dec. 13, two 85 ft. and five 106 ft. continuous steel I-beam spans on concrete substructure, FI 263 (14), Fayette Co., from Keeley Constr. Co., Clarksburg, **$292,284.** CD 12/2.

CONTRACTS AWARDED

Illinois—State Div. Hys., Springfield, substructures for 2 parallel bridges on 11 Route 122 over Little Calumet River, Cook Co., to Great Lakes Dredge & Dock Co., 122 S. Michigan Ave., Chicago, Zone 3, **$597,748.** Bids 12/2, awarded 12/14. CD 12/7, under LB.

New Jersey and Pennsylvania—Delaware River Joint Comn., Camden Plaza, Camden, N. J., Contr. 5, two traffic lane signal sys., etc., Delaware River Bridge, Camden Co., N. J., and Phila. Co., Pa., to W. V. Pangborne & Co., Inc., 1927 W. Montgomery Ave., Phila., Pa., **$217,840.** Bids 11/28. CD 10/28.

†Oregon—U. S. Eng., 19 E. Poplar St., Walla Walla, Wash., double-leaf bascule bridge across navigation lock at McNary Dam on Columbia River, CIVENG-45-164-50-57, to Willamette Iron & Steel Co., 3050 N. W. Front St., Portland, **$419,839.** Est. $480,103. Bids 12/15. CD 11/15.

PROJECTS COVERED

Projects—By Size

Construction projects here reported cover the United States and Canada, are of these minimum sizes or larger: water supply, earthwork, waterways $28,000; other public works $50,000; industrial buildings $68,000; other buildings $250,000.

Classes of Construction

(Name in order of Listing)

Water Supply
Sewers, Waste Disposal
Bridges
Streets & Roads
Earthwork, Waterways
Latin America
Public Buildings
Commercial Buildings
Industrial Buildings
Unclassified

Stages Reported

PROPOSED WORK: Including appointment of engineers or architects.

BIDS ASKED (new announcements only). For full calendar, see also preceding issues of ENR.;

LOW BIDDERS: On jobs below $500,000 value all low bidder news will be the final reports published on the projects involved except where award is not made to the low bidder. In this case, a supplementary contract award report will be published.

CONTRACTS AWARDED: Except awards to low bidders previously reported in low bidder stage.

Dates shown are of issue in which last previous report was published.

Symbols and Abbreviations Include:

♦ Federal Government
● Project of $1,000,000 or over.
ENR Engineering News-Record
CD Engineering News-Record Construction Daily

STREETS AND ROADS

BIDS ASKED

†Oklahoma—B. A. 1/4—U. S. Eng., P. O. Box 61, Tulsa, relocating Hy. 33, Fort Gibson Dam, Grand-Neosho River, Inv. No. CIVENG-34-006-50-55. $200,000. Extended date. CD 11/22.

Tex., LaPorte—B. A. 1/5—City, asph. paving, wid'n., $100,000. Wyatt C. Hedrick, 5201 Fannin St., Houston, engr. CD 5/16.

N. M., Clovis—B. A. 1/24—City, City Hall, 75 blocks approx. 19,000 lin. ft. asph. paving, concrete curbs and gutters. $450,000. Plans deposit $125. Hasie & Green Eng. Co., P. O. Box 1139, Lubbock, Tex. engrs. CD 5/31.

LOW BIDDERS

†California—Bureau Public Roads, Dpt. Commerce, 180 New Montgomery St., San Francisco, Dec. 13, by. imprvt. 1.783 mi. Mill Creek, San Bernardino National Forest, San Bernardino Co., from Clifford C. Bond, 6 N. 1 Ave., Arcadia, **$726,539.** CD 11/30.

Maryland—State Rds. Comn., Baltimore, wid'n., drainage, resurf. 3.155 mi. section State Rt. 313 beginning at Barclay and exten. northerly to N. limits of Sudlersville, Contr. Q-228-2-215, Queen Annes Co., from Eastern Highways Corp., Box 2738, Brooklyn P. O., Baltimore, **$139,997.** CD 11/30.

Texas—State Hy. Comn., Austin, Dec. 14, roadbed tr. and base preservative 13.177 mi. Hy. Fm 970 and 972, S. 1395 (1) and S. 1396 (1), Williamson Co., from Holland Page, P. O. Box 1141, Austin, **$94,780*****grading, channel imprvt., structures, flexible base 0.610 mi. Hy. St. 225, U 1081 (3), Harris Co., from Farnsworth & Chambers Co. Inc., P. O. Box 74, Houston, **$294,947*****stabil. fdn. course and single asph. surf. tr. 7.477 mi. Hy. FM 1280, R 931-3-1, Trinity Co., from Menefee Bros., Nacogdoches, **$101,325*****flexible base and double asph. surf. tr. 11.24 mi. Hy. US 285, S. 1058 (5) and (4), Terrell and Pecos Counties, from Dean Word Co., New Braunfels, **$248,868*****flexible base, prime coat and single asph. surf. tr. 13.344 mi. Hy. FM 839, S. 1473 (1), Rusk Co., from Dew Constr. Co., Inc., P. O. Box 641, Tyler, **$85,448*****grading, structures 3.871 mi. Hy. U. S. 67, Proj. F 592 (13), Ellis Co., from T. C. Cage, 607 Travis Bldg., San Antonio, **$73,220*****flexible base and single asph. surf. tr. 9.439 mi. Hy. FM 474, S. 1032 (2), Kendall Co., from M. B. Killiam & Co., Inc. and Killian-Keller Co., P. O. Box 1981, San Antonio, **$83,303*****flexible base and double asph. surf. tr. 7.522 mi. Hy. 73-T S. 1403 (1), Chambers Co., from Trotti & Thomson, Inc., P. O. Box 70, Beaumont, **$279,557*****flexible base, single asph. surf. tr. 9.9 mi. Hy. FM 1088 S. 1223 (1), Austin Co., from J. W. Perry, 501 Insurance Bldg., San Antonio, **$125,856*****flexible base, double asph. surf. tr. 22.679 mi. Hy. FM 703, Proj. V 354-5-1, R 354-7-1 and R-354-8-1, Andrews, Martin and Gaines Counties, from Ernest Loyd, P. O. Box 1120, Austin, **$167,008*****cancelled bids to have been opened Dec. 14, flexible base, single asph. surf. tr. 10.379 mi. Hy. FM 1038 and 1037, S. 1357 (1) and R-146-8-1, Cottle Co., **$78,000.** CD 11/9, 11/25, 11/28.

West Virginia—State Rd. Comn., Charleston, Dec. 13, c. conc. 2.019 mi. Twelve Pole Creek Bridge—Cabell Co. Line Rd. (U. S. Rte. 60) F. I. 187 (16) Wayne Co., from W. H. Ringwald & Son, Chillicothe, O., **$557,296;** b.-con. and guard rail 9.332 mi. Welch-Pineville Rd., (W. Va. Route 16), S-68 (3) and traffic bound, road mix 5.65 mi. Sun Hil-Reedy Creek School Rd., (Sec. Rtes. 6 and 6/2) State Secondary Proj. 7762, both Wyoming Co., from Arno Constr. Co., Beckley, **$318,812** and **$52,343** respectively. CD 12/2.

CONTRACTS AWARDED

Ala., Mobile—Mobile Co. Bd. Road & Revenue Comrs., 24.01 paving 6 county roads, to Laidlaw Constr. Co., Contr. 1, **$111,186,** Contr. 2, **$58,720** and Contr. 3, **$76,974;** to J. R. Bryant, Montgomery, Contr. 4 **$199,290.** Grand total $446,080. Bids 11/29. CD 10/27.

Connecticut—State, G. Albert Hill, state hy. comr., Hartford, grading, draining, 1,047 lin. ft., 6 piers for viaduct over Main St., 134.31 ft. span rolled beam bridge Maybrook Line N. Y., N. H. & H. R. R., 33 ft. 6 in. clear span over N. Y., N. H. & H. R. R., rein.-con. approaches 6.35 ft. Main St., to Marianni Constr. Co., 222 Forbes Ave., New Haven, **$634,468.** Bids 11/28. CD 12/2, under LB.

Illinois—State Div. Hys., Springfield, c. conc. 8.82 mi. U. S. Route 66, McLean and Woodford Counties, to O'Connor Constr. Co., Reisch Bldg., Springfield, **$813,295.** Bids 12/2, awarded 12/14. CD 12-6, under LB.

Pa., Phila.—Dpt. P. Wks., City Hall Annex, paving various locations, Schedules B-5, B-8, C-1, C-2, C-3, E-2, to James D. Morrissey, 9119 Frankford Ave., **$77,752;** paving Schedule L, to J. E. Brenneman Co., North American Bldg., **$76,028.** Bids 11/25. Paul Murray, c/o owner, Hys. chief.

Tex., Houston — Archer Development Co., Electric Bldg., street constr. iron ore paving,

(Continued on page 44)

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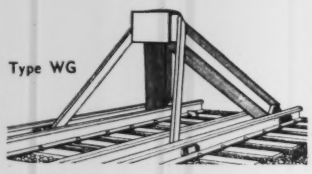

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(Continued from page 42)

vicinity Spring Branch between Katy, Long Point and Campbell Rds., own forces. **$67,500.** Hilton & Coulson, 3821 Fannin St., engrs.

Tex., Kerrville—Cadillac Terrace, c/o Wayne C. Huddleston, Kerrville, street constr. asph. paving, own forces. **$65,000.**

Utah—State Road Comn., State Capitol, Salt Lake City, c. conc. and 3½ in. plant mixed bit. roadway 2.136 mi. State St. from 4800 South St. U. S. Hys. 89, 50nd 91, Salt Lake Co., to Gibbons & Reed, 259 W. 3rd South St., Salt Lake City, **$287,393.** Est. 363,683. Bids 12/13. CD 12/15.

EARTHWORK, WATERWAYS

BIDS ASKED

B. C., Port Alberni—B.A. 1/4—J. M. Somerville, secy. Dpt. P. Wks., Hunter Bldg., Ottawa, Ont., dredging 35,900 cu. yd. sand and gravel and 1,750 cu. yd. rock. Approx. $65,000. R. Blais, c/o owner, engr.

LOW BIDDERS

†**New Jersey**—U. S. Eng., 80 Lafayette St., New York, 13, N. Y., Dec. 12, dredging in Raritan River, from The Arundel Corp., Pier 2, Pratt St., Baltimore, Md., **$133,379.** CD 12/9, under LB.

†**New Jersey**—U. S. Eng., 121 N. Broad St., Phila., 1, Pa., Dec. 14, maintenance dredging in Delaware River east of Burlington, Inv. No. CIVENG-36-109-5027, from J. L. LaPorte, 1101 Wilson Blvd., Arlington, Va., **$48,000.** CD 11/11.

†**Texas**—U. S. Eng., 606 Santa Fe Bldg., Galveston, cancelled bids to have been opened Jan. 17, residence and storage bldg., Lavon Dam and Reservoir, East Fork, Trinity River. Inv. No. CIVENG-41-243-50-120. Will readvertise. CD 12/12.

Tex., Houston—Harris County Flood Control & Drainage Dist., Courthouse, Dec. 12, 100,720 cu. yd. excav. from Faulkney Gulley in Cypress Creek area, from Roy L. Anderson, Inc., Aldine-Westfield Rd., **$29,665.** R. J. Putney, Stewart Bldg., engr. CD 4/22/48.

CONTRACTS AWARDED

†**Indiana**—U. S. Eng., 830 W. Broadway, Louisville, Ky., clearing sand for Eagles Mill Reservoir near Terre Haute, to Maurice E. Doll, Vincennes, **$139,000.** Est. $139,000. Bids 12/15, awarded 12/15. CD 11/25.

Ia., Des Moines—State Conservation Comn., 914 Grand St., dam, spillway, intake control structure, Cold Springs, in Goode State Park, near here, to Ralph Green & W. L. Griesbeck, Masonic Temple Bldg., **$42,831.** Bids 11/29, Lechner Eng. Co., Ames, engr. CD 10/3.

Tex., Houston—Archer Development Co., Electric Bldg., clearing, grubbing, grading for site development, vicinity of Spring Branch, between Katy, Long Point and Campbell Rds., own forces. Approx. **$45,000.** Hilton & Coulson, 3821 Fannin St., engrs.

†**Washington**—U. S. Eng., 4735 E. Marginal Way, Seattle, Zone 4, dredging Swinomish Slough, CIVENG-45-108-50-10, own forces. **$49,200.** Bids 12/15. CD 12/8.

Wash., Yakima—City, City Hall, irrigation pipes in area between Lenox and Mead from Voelker to 12 Aves. and from Stewart to Mesa between Broadway and 8 in southwest part of city to Bosco Constr. Co., Yakima, **$187,852.** Est. $191,000. Bids 12/15. CD 12/1.

AIRPORTS AND AIRBASES

CONTRACTS AWARDED

N. Y., Idlewild — PUMPING STATION FACILITIES — Port of New York Auth., 111 8th Ave. New York, Zone 11, piping, plumbing and heating high pressure fire pumping station at New York International Airport, to Jacbos Eng. Corp., 370 Lexington Ave., New York, Zone 17, **$175,000.** CD 11/10.

PUBLIC BUILDINGS

BIDS ASKED

Md., Towson—SCHOOL—B.A. 1/5—Baltimore Co. Bd. Educ., 1 story, masonry, Mars Estate School, $775,000. Plans deposit $50. Henry Powell Hopkins, 10 E. Mulberry St., Baltimore, Zone 2, archt. James Posey, 10 E. Pleasant St., Baltimore, Zone 2, mech. engr. Van Ronaselaer-Sayre, 600 W. Monument St., Baltimore, Zone 2, structural engr. CD 6/10.

N. Y., Grahamsville—SCHOOL—B.A. 1/5—Bd. Educ., Union Free School Dist. 1, Grahamsville, school. $700,000. Plans deposit $25. Walter P. R. Pember, 24 James St., Albany, archt.

●**Pa., Phila.**—HIGH SCHOOL—B.A. About 1/8—Bd. Educ., 21 and Winter Sts., South Phila. High School. $5,000,000. Davis, Dunlap & Carver, 1717 Sansom St., archts. Gravell & Duncan, 1600 Walnut St., engrs. CD 3/24/47.

●†**N. M., Albuquerque**—LABORATORY—B.A. 1/10—U. S. Eng., P. O. Box 1538, 3 story, bsmnt., 120,000 sq. ft. A-19 laboratory, Serial No. 291-50-24, $1,250,000. Extended date. CD 11/28.

●**D. C., Wash**—SCHOOL—Bids Asked—Distr. Comrs., District Bldg., Springarn High School for negro students, 24 St. and Benning Rd. N.E. $3,600,000. Merrill A. Coe, District Bldg., municipal archt. (**Correction**—bid date to be set later.) CD 11/28.

LOW BIDDERS

Calif., San Jose—TELESCOPE—Bd. Regents, University of California, Berkeley, Dec. 13, 120 ft. steel telescope bldg., air-conditioning, on Mt. Hamilton Campus, from Carrico & Gautier, 365 Ocean Ave., San Francisco, **$628,800.** CD 12/5.

Md., Annapolis—HEALTH and WELFARE —Comrs. Anne Rundel Co., Court House, 2 story, bsmnt., 72x120 ft., brick, steel, health and welfare bldg., from Mullan Contg. Co., 3945 Greenmount Ave., Baltimore, Zone 18, **$335,000.** CD 12/2.

Md., Baltimore — SCHOOL — City, Bureau Bldg. Constr., 410 Municipal Bldg., Zone 2, Dec. 14, 1 and 2 story, part bsmnt., rein.-con., steel, limestone Fallstaff School, Fallstaff Rd. and Gist Ave., from Costanza Constr. Co., 225 E. Redwood St., **$504,750.** CD 12/2.

Mass., Haverhill HOUSING — Haverhill Housing Auth., George E. McGregor, chn., Dec. 14, 60 unit housing, Summer St., State Aided Proj. Haverhill, 200-2, from Paquette Constr. Co., 132 Bridge St., Manchester, N. H., **$136,660.** CD 11/21.

●**Mass., Holyoke**—HOUSING—City of Holyoke Housing Auth., C. J. Brodeur, dir., Dec. 14, housing, State-Aided Proj. 200-1, from Daniel O'Connell's Sons, Inc., 480 Hampden St., **$1,691,000.** Alderman & Alderman, 316 High St., Holyoke, archts. CD 11/21.

●**Mich., Ann Arbor**—DORMITORY—University of Michigan Bd. Regents, Admin. Bldg., Dec. 6, 9 story, 424x210 ft. rein.-con. steel men's dormitory, from Bryant & Detwiler Co., 2304 Penobscot Bldg., Detroit, **$2,639,000.** CD 11/22.

Mo., Columbia—MEAT LABORATORY—Bd. Curators University of Missouri, Leslie Cowan, secy., Jesse Hall, Columbia, Dec. 8, 4,000 sq. ft. meat laboratory, inc. mech. facilities, for University of Missouri, on Rollins St., from John Epple Constr. Co., 401 S. 6 St., **$95,000.** CD 1/46.

●†**N. C., Durham**—HOSPITAL—U. S. Eng., 308 Customhouse, Wilmington, Dec. 14, 500 bed general medical Veterans Admin. Hospital for Veterans Admin., Vermont Ave. between H and I Sts. N.W., Wash. 25, D. C., from Thompson & Street Co., Pineville Rd., Charlotte, **$5,685,400**; elevators, from Otis Elevator Co., 405 Wrightsville Ave., Wilmington, **$238,471.** CD 10/4.

O., Struthers — FIELD HOUSE, etc. — Bd. Educ., Struthers, general contract high school field house and converting present gymnasium into domestic science department, from Emanual Katzman & Co., 1900 State St. S., Youngstown, **$320,979.** CD 11/23.

Tex., Houston — SCHOOL — Houston Independent School Dist., 1600 Washington St., Dec. 15, Garden Villas School, from Marquette Constr. Co., 7907 Hartford St., **$334,856.** Est. $300,000. CD 11/29.

CONTRACTS AWARDED

●**Ky., Henderson** — POWER PLANT — City, Municipal power and light plant imprvs., to Ryan Constr. Co., 402 Court Bldg., Evansville, Ind., Approx. **$2,500,000.** Bids 12/12, awarded 12/14 CD 12/2

●**Mass., Chicopee**—HOUSING—Chicopee Housing Auth., Paul Geissler, dir., 226 family unit housing, Motgomery St., State-Aided Proj., Chicopee 200-1, to J. G. Roy & Sons Co., 21 Silver St., Springfield, **$1,913,094.** CD 11/17.

Mass., Framingham—HOUSING—Framingham Housing Auth., Town Hall, 75 unit housing, State Aided Proj. Framingham 200-2, to A. Cefalo & Sons, 42 Bennett St., Lynn, **$700,700.** Bids 11/8. CD 11/22.

Minn., Rochester—MEDICAL, etc.—State Dpt. Admin., P. T. Peterson, dir. Purchases, 19 State Capitol, St. Paul, general contract, medical and surgical bldg. at State Hospital, incl. tunnel, to C. C. Pagenhart, Rochester, **$910,500.** Bids 12/7. CD 12/15, under LB.

Mo., Columbia — AGRICULTURAL — Bd. Curators University of Missouri, Leslie Cowan, secy., Jesse Hall, Columbia, general contr. (1st unit), 1 story, 146x222 ft. stone, brick, concrete, steel, tile agricultural bldg., near Hill and Rollins Sts., to John Epple Constr. Co., 401 S. 6 St., Columbia, **$419,986.** Bids 12/8. CD 11/28.

Neb., Bellevue — POWER STATION—Loup River Public Power Dist., Columbus, superstructure for Unit 3, power station at Bellevue Plant, to Bates & Rogers Constr. Co., 600 W. Jackson Ave., Chicago, Ill., **$500,000.** Bids 11/9. CD 10/27.

●**N. Y., Brooklyn**—SCHOOL—Supt. School Bldgs., Design & Constr. 49 Flatbush Ave. exten., Zone 1, general contract P. S. 14, Avenue X and Brown St., to John T. Brady & Co., 666 W. 47 St., New York, Zone 19, **$1,969,400.** Bids 11/30. CD 12/8, under LB.

●**N. Y., New York**—BUS TERMINAL—Port of New York Auth., 111 8 Ave., Zone 11, bus terminal bldg., exclusive of steelwork and foundations, Contr. BT-5, to Turner Constr. Co., 420 Lexington Ave., **$9,194,759.** Bids 12/8. CD 12/12, under LB.

Tenn., Johnson City—HEALTH and PHYSICAL EDUCATION—State of Tennessee, Nashville, health and physical educ. bldg. at East Tennessee State College, to Cassell Bros., Kingsport, **$610,000.** Bids 12/2. CD 12/8, under LB.

Ont., Chalk River — LABORATORY — National Research Council, Sussex St., Ottawa, laboratory, to Carter Constr. Co., Ltd., 419 Cherry St., Toronto, Approx. **$250,000.** Bids 11/30. CD 11/22.

Ont., Ottawa — HEADERHOUSE — Dpt. P. Wks., Hunter Bldg., Ottawa, headerhouse at Central Experimental Farm, to Henri Dage-

nais, 186 St. Patrick St., Approx. **$75,498.** Bids 12/7. CD 11/30.

Ont., Ottawa — LABORATORY — Dpt. P. Wks., Hunter Bldg., Ottawa, fuel testing laboratory, Booth St., to Henri Dagenais, 186 St. Patrick St., Approx. **$69,000.**

●**Que., Montreal**—HIGH SCHOOL—Protestant School Comrs., 3460 Mac Tavish St., 2 story, bsmnt., 70x700 ft. high school, rein.-con., structural steel, brick high school, Beaubien St., to J. L. E. Price & Co., Ltd., 680 Sherbrooke W., **$1,400,000.** Bids 11/22. CD 11/4.

COMMERCIAL BUILDINGS

BIDS ASKED

Pa., Pennsburg — LIBRARY — B. A. after 12/27 — Sydney E. Martin, archt., 117 S. 17 St., Phila., (selected list bidders) library, for Schwenkfelder Library Corp., 126 Roberts Ave., Glenside, library. $250,000.

●**Tex., Houston** — DWELLINGS — Bids Asked —MacGregor Park Homes, Inc., c/o J. E Leicher, 2402 Arbor St., Sec 3, 214 dwellings, MacGregor Pl. subdivision. $1,498,000. CD 12/1.

SOON LETS CONTRACT

Mass., Haverhill—TEMPLE—Temple Emanuel, 514 Main St., soon lets contract 3 story, 70x75 ft., brick, stone, steel, temple addn., alterations, Main St. and 10 Ave. Isidor Richmond & C. Goldberg, 16 Arlington St., Boston, archts.

Mo., St. Louis—SCHOOL—Markus Evangelical Lutheran Church, c/o Frorse, Maack & Becker, archts., 705 Olive St., Zone 1, soon lets contract on revised plans 1 story, bsmnt., 71x109 ft., brick, concrete parochial school, 22 and Angelica Sts. CD 6/28.

N. J., Trenton — CHURCH — Henry A. Dagit & Son, archt., 1329 Race St., Phila., Pa., soon lets contract church, for The Blessed Sacrament R. C. Church, 716 Bellevue Ave., Approx. $250,000.

Tex., Austin — SCHOOL — St. Stephens Episcopal School, Bishop John E. Hones, 2900 Bowman Rd., soon lets contract school, $250,000. Extended date. Fehr & Granger, 502 E. 5 St., archts. George R. Rhine, 209 San Pedro St., San Antonio, engr. CD 12/14.

Tex., Houston — DIAL — Southwestern Bell Telephone Co., Akard and Jackson Sts., soon lets contract solid masonry Melrose Dial Bldg., **$250,000.**

Que., Quebec City—COMMERCIAL—Elisabin & Berkowitz, archts., 1434 St. Catherine St. W., Montreal, soon lets contract 5 story, bsmnt., 84x185 ft., rein.-con., brick, block, stone commercial bldg., Charest Blvd. and Bridge St. Approx. $700,000. I. S. Backler, 1250 McGill College Ave., Montreal, engr. CD 1/2/48.

LOW BIDDERS

●**Fa., Pensacola** — HOSPITAL — Pensacola Baptist Hospital, c/o Charles H. McCauley, archt., Jackson Bldg., Birmingham, Ala., Dec. 14, hospital, from Dyson & Co., W. Intendencia St., Approx. **$1,200,000.** CD 11/23.

Ky., Louisville — HOSPITAL — Red Cross Hospital Assn., 1436 S. Shelby St., Dec. 13, 4 story, bsmnt., 44x120 ft. rein.-con., steel, brick hospital addn., from Platoff Const. Co., Woodbine St., **$403,390,** Southern Engineers Co., 419 W. Main St., engr. CD 12/7.

Tex., Dallas—MONASTERY, etc. — Ursuline Academy, c/o Rev. Mother Margaret Mary, 1330 St. Joseph St., Dec. 1, monastery, incl. school, from T. C. Bateson Const. Co., Dunn-Keasler Bldg., **$654,795.** CD 12/14, under LB.

CONTRACTS AWARDED

●**Ala., Mobile**—HOSPITAL—Mobile Infirmary, Inc., c/o contractor, hospital, to Henry C. Beck Co., First National Bank Bldg., Atlanta, Ga., **$3,074,700.** Bids 11/29. CD 12/7.

Calif., Glendale — HOSPITAL — Glendale Community Hospital, 1100 E. Windsor Rd., 3 story, rein.-con. hospital, to Pozzo Constr. Co., 2403 Riverside Dr., Los Angeles, **$400,000.** Est. $300,000. Bids 6/28. CD 9/16/48.

Calif., Los Angeles—DWELLINGS—Republic Homes, 5670 Wilshire Blvd., 126 frame, stucco dwellings in Tract 16240, to Shumaker-Evans, 354 S. Spring St., Approx. **$756,000.** William Bray, 5670 Wilshire Blvd., archt.

Conn., Glastonbury — HOUSES — Robert T. Lang, Hebron Ave., frame ranch type houses, 70 acre plot, Strickland St. Owner builds. **$750,000.** Harold L. Brown, Hall Rd., Bloomfield, archt. CD 12/6.

Conn., Meriden — HOUSES — Henry Runge & Sons, 318 Elm St., 40 frame single homes, Hanover Dist. Owner builds. **$300,000.** CD 12/7.

Conn., Mystic — TELEPHONE — Southern N. E. Telephone Co., 227 Church St., New Haven, 2 story, bsmnt., brick, steel, stone telephone bldg., incl. offices and new dial system., to Associated Constr. Co., 1010 Wethersfield Ave., Hartford, Approx. **$250,000.** Bids 11/3. Douglas Orr, 96 Grove St., New Haven, archt. CD 11/1.

Del., Newark — APARTMENT — University Gardens, Inc., c/o general contractor, apartment, Beverley Rd., to Stone Constr. Co., 1717 Brandywine St., Phila., Pa., **$500,000.** Aaron Cohen, 117 S. 17 St., Phila., Pa., archt.

Del., New Castle — HOTEL — New Castle Motor Lodges, Inc., c/o Wolf & Gluckman, archts., 880 Broad St., Newark, N. J., tourist hotel, to Rupert Constr. Co., 2400 Lancaster Pike, Wilmington, **$250,000.**

Fla., Fort Pierce—HOMES—Kenneth Adams, Fort Pierce, 80 homes. Owner builds. Approx. **$500,000.**

●**Ga., Augusta** — APARTMENT — Maxwell House, c/o contractor, 10 story apartment, to Daniel Constr. Co., Greenville, S. C., Approx. **$2,000,000.**

●**Ga., Savannah** — APARTMENT — Drayton Arms Apartments, c/o contractor, 12 story apartment, to Byck-Worrell Constr. Co., E. Bay St., **$1,666,000.**

Md., Baltimore — TEMPLE, etc. — Hebrew Congregation of Baltimore, 7401 Park Heights Ave., 1 and 2 story, irregular shaped, 39x121x 145 ft., brick temple, L shaped 38x103x165 ft., Jewish Community Center, Charlesworth Rd. and Park Heights Ave., to Cogswell Constr. Co., 513 Park Ave. Bids 7/29. Percival Goodman, 19 E 48 St., New York City, N. Y., archt. Fred N. Severud, 415 Lexington Ave., New York, N. Y., struct. engr. Paul Wunderlich, Grand Central Terminal Bldg., New York, N. Y., mech. engr. CD 6/30.

Mass., Brockton — HOSPITAL — The Brockton Hospital Co., A. S., Orr, pres., Center St., brick, steel, concrete hospital addns., and boiler plant addn., Center St., to George B. H. Macomber Co., 19 Milk St., Boston, **$706,000.** Bids 11/8. CD 11/17, under LB.

Mass., Jericho — HOUSING—Ralph Johnson, Jr., Main St., Centerville, 30 single, frame houses. Owner builds. **$250,000.**

Miss., Jackson — APARTMENTS — Magnolia Terrace, Inc., 322 W. Capitol St., apartment development. Owner builds. **$360,000.**

Mo., St. Louis — INSTITUTION — Central Institution for the Deaf, Dr. S. Richard Silverman, Ph. D., dir., 818 S. Kingshighway, Zone 19, 5 story, bsmnt., rein.-con., brick, steel bldg. incl. clinical quarters, research laboratories, etc., Papin St. east of Kingshighway Blvd., to Dickie Constr. Co., 420 Louderman Bldg., 317 N. 11 St., Zone 1. Approx. **$400,000.** Bids 11/22. CD 10/26.

Pa., Elkins Park — RESIDENCES — Martin Wolf, 5123 N. 10 St., Phila., residences, various streets, separate contracts. Approx. **$300,000.**

Pa., Phila.—RESIDENCES—S E Crowther, 69 and Walnut Sts., Upper Darby, residential development, 34 and Clearfield Sts., separate contracts. **$250,000.** Erling Wenge, McClatchy Bldg., Upper Darby, archt.

Tenn., Chattanooga — SUPER MARKET — Kroger Co., c/o contractor, super market grocery store, to Lindsey-Davis Co., 401 N. Market St. Approx. **$250,000.**

Tex., Beaumont — HOUSING — Star Lumber Co., c/o M. V. Jones, 1977 Railroad St., low cost housing, (under Title 1, Sec. 3). Owner builds. Approx. **$450,000.** CD 12/13.

Tex., Houston — DWELLINGS — The Bryan Co., Box 852, Pasadena, 50 dwellings, own forces. Approx. **$350,000.** CD 12/7.

Tex., Houston—DWELLINGS—Builders, Inc., Commerce Bldg., 26 dwellings. Owner builds. Approx. **$315,000.** CD 12/15.

●**Tex., Houston** — DWELLINGS—L. E. Helms Lumber Co., 5214 Airline St., 99 dwellings, Stannard Pl., Approx. **$725,000;** 65 dwellings, Helms Pl., Approx. **$475,000.** Owner builds. CD 12/1.

Tex., Houston — DWELLINGS — Stoerner Constr. Co. Inc., 7745 Buena Vista St., 26 dwellings, Westridge St. Owner builds. Approx. **$300,000.**

Tex., Houston — HOUSING — L. R. Webb Constr., 8250 Glenbrook Dr., housing, Hulsache Acres, own forces. Approx. **$300,000.** CD 12 2.

Tex., San Antonio — DWELLINGS — Wm. Orchse & Assoc., Alamo Natl. Bldg., 30 dwellings. Owner builds. Approx. **$275,000.** CD 12/1.

Ont., Sudbury — OFFICE, etc. — Loblaw Groceterias Co., Ltd., Fleet and Bathurst Sts., Toronto, 2 story, rein.-con., structural steel, concrete block, brick office and store, Elm Ave. and Frood Rd., to Foundation Co. of Ontario, Ltd., 166 Douglas St., Toronto, Approx. **$250,000,** Bids 11/18. CD 11/10.

Que., Montreal — APARTMENT HOUSE — E. Laplante, 9215 Berri St., apartment, Pie IX Blvd. and Jeanne d'Arc. Owner builds. **$250,000.** J. P. Bayard, 4928 St. Denis St., archt.

INDUSTRIAL BUILDINGS

BIDS ASKED

Ont., Toronto—GLYCERIN UNIT—B.A. 1/10 —Stone & Webster Eng. Corp., engrs., 299 Eastern Ave., glycerin unit, for Lever Bros. Ltd., 299 Eastern Ave. $108,000. CD 2/21.

Tex., Houston—AUTO, SERVICE and DISPLAY—B.A. 1/15—Rosenstock Motors, Inc., 1120 McKinney St., 32,500 sq. ft. auto service, display, $300,000. R. S. Colley, 3204 Santa Fe St., Corpus Christi, archt. R. M. Shipman, 301 Parland Pl., San Antonio, engr. CD 12/2, under LB.

SOON LETS CONTRACT

Okla., Oklahoma City—WAREHOUSE, etc. —J. E. Fain, mgr., Oklahoma Industries, Inc., First Natl. Bldg., Zone 2, soon lets contract 160x100 ft. warehouse and dock bldg., 41 and Santa Fe Sts. $70,000. Holifield & Stone, Colcord Bldg., Zone 2, archts.

Tex., Galveston — PLANT — Lipton Tea Co., 2324 Strand St., soon lets contract tea plant. $500,000. E. H. Thornton, 2324 Strand St., engr. CD 11/15.

Tex., Houston — AUTO PLANT, etc. —Lester Goodson Pontiac Co., 1117 San Jacinto St., soon lets contract auto plant, service, shop. $125,000. Irving & Hoyt, 5519 Memorial Dr., archt. Walter P. Moore, 4605 Montrose St., and R. L. Jenkins, 4316 Blossom St., engrs. CD 12/13.

LOW BIDDERS

Mo., St. Louis—WAREHOUSE, etc.—Artophone Corp., 4200 Forest Park Ave., St. Louis, Zone 8, Dec. 9, brick, concrete, steel warehouse, service and office bldg., from I. E. Millstone Constr. Co., 4343 Clayton Ave., Zone 10, **$409,300** base bid; **$22,000** Alternate I. CD 11/28.

Pa., Phila.—PLANT—Clover Beef Co., 905 Girard Ave., rejected bids meat packing plant Approx. **$68,000.** Will re-advertise. CD 11/23.

Tex., Kerrville—PLANT—American Pure Silk Co., Kerrville, Dec. 14, 2 story masonry milk plant, tile cooling tower, cold storage vault, concrete frame and fdn., from W. A. Sullivan, Kerrville, **$91,153.** Est. $100,000. CD 11/29.

Que., Montreal — WAREHOUSE — Kruger Paper Co., Ltd., 941 Inspector St., rejected bids, 1 story, bsmnt., rein.-con., structural steel, brick warehouse. Approx. **$100,000.** Will re-advertise. CD 10/11.

CONTRACTS AWARDED

Conn., Milford—PLANT—American Windfield Co., Post Rd., two 1 story units, 42x100 ft. and 50x153 ft. plant units, Post Rd., to John Zandonella, 70 Chase St., Bridgeport, Approx. **$70,000.** Leo F. Caproni & Assoc., 1221 Chapel St., New Haven, archts.

Conn., Norwalk—FACTORY—Edwards & Co., Inc., Connecticut Ave., 1 story, 75x175 ft., brick, concrete factory, Connecticut Ave., to William J. Lyons, 9 Mechanic St., Approx. **$75,000.** Fletcher Thompson, Inc., 214 State St., Bridgeport, archt.

Ga., Atlanta—WAREHOUSE, etc.—Kroger Co., c/o contractor, warehouse and office, to Rust Eng. Co., Exchange Bldg., Birmingham, Ala., Approx. **$600,000.**

Idaho, Burley—TERMINAL FACILITIES—Utah Oil Refining Co., Utah Oil Bldg., Salt Lake City, Utah, terminal facilities, to Morrison-Knudsen Co., 900 W. 1 North St., Salt Lake City, Utah, Approx. **$300,000.**

Ky., Louisville—WAREHOUSE, etc.—American Radiator & Standard Sanitary Corp., 834 E. Broadway, branch warehouse and storage bldg., to Whittenberg Constr. Co., Floyd St., **$760,000.** Prack & Prack, 119 Federal St., Pittsburgh, Pa., archts.

Mass., Boston—FACTORY—A. L. Smith Iron Co., 100 Cummington St., 1 story, brick, concrete factory addn., Cummington St., separate contracts, **$70,000.** D. J. Abrams & Assoc., 651 Boylston St., archt.

Mich., Detroit—PLANT—Detroit Edison Co., 2000 2 Ave., 8 story, brick, structural steel, 31x72 ft. flue dust plant, to The United Engineer & Contractors, 1401 Arch St., Phila., Pa., **$131,500.** Awarded 12/9. CD 10/3.

O., Dayton—WAREHOUSE—Dayton Economy Drug Co., Lester Lutz, mgr., 115 W. Riverview Ave., 2 story warehouse addn., adding 13,000 sq. ft. to Guentter-Reinhard Co., 2023 Dunlap St., Cincinnati. Est. **$85,000.**

O., Dayton — PLANT — Miami Valley Cooperative Milk Producers Assn., 1516 Maple St., dairy plant addn., to F. X. Minnigan, Inc., 16 Bates St. Approx. **$200,000.** J. L. Newcomer, Richmond, Ind., archt.

Pa., Jenkintown—INDUSTRIAL— Standard Pressed Steel Co., Jenkintown, 2 story, 23,000 sq. ft., brick, structural steel Industrial Bldg. 54, to Townsend & Elfreth, 1700 Sansom St., Phila. **$250,000.** Widdicombe Eng. Co., 117 S. 17 St., Phila., engrs.

R. I., Providence—STORAGE—Arch Lumber Co., 353 Washington St., 3 story, 42x80 ft. cinder block, concrete storage bldg., Fountain St. Owner builds. **$68,000.** Armand G. Caruolo, 993 Hartford Ave., Johnston, archt.

Wis., Greenfield—WAREHOUSE—Froedert Grain & Malting Co., 3830 W. Grant St., Milwaukee, Zone 15, 1 story, 70x125 ft., rein.-con., brick warehouse, to Klug & Smith Co., 4425 W. Mitchell St., West Allis, Zone 14. Brunner, Gemeny & Odean, 9 S. Clinton St., Chicago, Ill., engrs.

Alta., Edmonton—WAREHOUSE—Canada Safeway, Ltd., 10128 105 St., warehouse, 10118 105 St., to Bennett & White of Edmonton Ltd., 11239 83 St., Approx. **$144.000.** N. C. McKernan, 3 Credit Foucier Bldg., archt.

Ont., Kitchener—WAREHOUSE— National Grocers Ltd., 21 Front St., Toronto, concrete, steel, brick warehouse, to W. H. Cooper Constr. Co., Ltd., 21 Hunter St., Hamilton. **$160,000.**

Ont., Toronto—PLANT—Canadian General Electric Co., Ltd., 212 King St. W., 2 story, 70x120 ft., steel frame, brick Royce Works addn., 830 Landsdowne Ave., to W. B. Sullivan, Ltd., 30 Bloor St. W., Approx. **$175,000.** Horwood & White, 229 Yonge St., archts.

UNCLASSIFIED

BIDS AXED

Calif., Los Angeles—SWIM POOL—B.A. 1/10—Bd. Supervs. Los Angeles Co., 501 Hall of Records, swim pool in Palmdale Park. $55,-647. Wm. H. Taylor, archt. and N. D. Whitman, Jr., engr., both 109 S. Los Robles St., Pasadena.

Calif., Los Angeles—TRAFFIC SIGNAL SYSTEMS, etc.—B.A. 1/12—State Div. Hys., 120 S. Spring St., traffic signal systems and highway lighting on Firestone Blvd. from Rosecrans to Valley View Aves. G. T. McCoy, Sacramento, state hy. engr.

†**Arizona - California - Nevada** — CIRCUIT BREAKERS, etc.—B.A. 1/31—Bureau Reclamation, Dpt. Interior, Bldg. 1-A, Denver Federal Center, Denver, Colo., furnishing, del. f.o.b. cars shipping point or f.o.b. cars Boulder City, Nev. power circuit breakers, disconnecting switches for Nevada State 69-kilovolt switchyard, Boulder Canyon Proj., Spec. 2866. L. N. McClellan, ch. engr.

LOW BIDDERS

California — PARK IMPRVS. — State Div. Architecture, P. Wks. Bldg., Sacramento, Dec. 13, water development project at Columbia Historic State Park, Tuolumne Co., from Ferguson Bros., 4923 San Leandro St., Oakland, **$59,673.** CD 11/28.

Calif., San Francisco—STADIUM—San Francisco Park Comn., McLaren Lodge Golden Gate Park, Dec. 12, rehabilitation Kezar Stadium, from Biltwell Constr. Co., 4745 Geary Blvd., **$174,777.** CD 11/30.

●**Ind., Fort Wayne**—COLISEUM—Bd. Comrs. Allen Co., Court House, Dec. 14, general contract, Allen County War Memorial Coliseum, from Hagerman Constr. Co., 402 E. Superior St., **$1,850,666****plumbing, heating and ventilating from Hosh-Pearson, Inc., 215 W. State St., **$84,089*****ice floor and refrigeration, from Buildire Co., Fort Wayne **$89,657*****electrical work, from Lyman Electric Co. Inc., 916 Fairfield St., **$157,964.** CD 10/3.

Louisiana—RURAL DISTRIBUTION LINES —Louisiana Rural Electric Co-operative, Alexandria, Dec. 13, 120 mi. rural distr. and transmission lines, 8.5 mi. 34.5 KV transmission lines, 2000 KVA sub-station, Contr. 2, located in Rapides, Avoyelles, Evangeline, St. Landry and Grant Parishes, from Kincade & Loftin, P. O. Box 244, Pinesville, **$171,148.** Est. $152,000. CD 12/2.

●**Md., Baltimore**—TROTTING TRACK—Baltimore Trotting Races, Inc., 210 E. Lexington St., Zone 2, Dec. 12, Contr. 2, trotting racing track, grandstand, club house, jockey quarters, stables, barns, near here, from The Davis Constr. Co., 320 W. 24 St., Zone 18. Total est. **$1,500,000.** CD 11/30.

Md., Baltimore—STADIUM—City, Bureau Bldg. Constr., 417 Municipal Bldg., 2nd portion of proj., Babe Ruth Stadium, E. 33 St., incl. grading, constr. Lower stands, Sections L.E. to S.E. and L.W. to S.W., from DeLuca Davis Constr. Co., 102 E. 25 St., **$747,345.** Est. $750,000. R. E. Williams, c/o owner, bldg. constr. engr. CD 11/30.

CONTRACTS AWARDED

Alabama—RURAL DISTRIBUTION LINES —Southern Pine Electric Co-operative, Brewton, 202 mi. rural distr. lines in Escambia, Conecuh, Baldwin, Covington and Monroe Counties, to Victory Electric Co., 266 St. Michael St., Mobile, **$199,244.** Bids 12/9. CD 11/30.

Calif., Los Angeles—PARK BLDG.—City Council, 72x109 ft. park bldg. at Orcutt Playground, to Buttress & McClelland, 1013 E. 8 St., **$65,574.** Bids 11/28. CD 1/15/45.

Calif., Sacramento—SWIMMING POOL— Sacramento Unified School Dist., 1200-21 St., swimming pool at Sacramento Junior College, to Campbell Constr. Co., 800 "R" St., **$188,474.** Bids 12/12. CD 11/22.

Tex., Fort Worth—BASEBALL PARK— Fort Worth Baseball Club, c/o J. L. Reeves, pres., N.E. 7 and N. Jones Sts., replacing ball park destroyed by fire, concrete, steel and roof frame, structural steel contract to General Steel Co., 3001 W. Poffard St., **$95,000.** Total est. $450,000. Herman G. Cox, 401 N. P. Anderson Bldg., engr. and archt. CD 5/29.

●**Tex., Navasota**—TRANSMISSION LINES— Gulf States Utilities Co., 362 Liberty St., Beaumont, 85 mi. 132,000 volt transmission line between Navasota and Dayton, to Stone & Webster Eng. Corp., M. Esperson Bldg., Houston, **$1,850,000.** CD 9/5.

Tex., Waco—STADIUM IMPRVS.—Baylor University, Waco, site grading, imprvs., and hard paving auto parking zones, to Swigert Constr. Co., 8 and Speight Sts., **$136,760** and **$70,000** respectively. Bids 11/2. CD 9/30.

Wis., Superior—DOCK, etc.—Lake Head Pipe Line Co., Superior, rebuilding dock, to Roland C. Buck, Inc., 1225 Tower Ave., Superior; dredging, to Zenith Dredge Co., 14 Ave. W. and Waterfront St., Duluth, Minn. Approx. **$128,000.** J. B. Adoue, Jr., 30 Rockefeller Plaza, New York, N. Y., engr.

PROPOSED PROJECTS

Md., Cumberland—Mayor and City Council, City Hall, concrete, brick, steel Lake Gordon Filtration Plant addn. **$150,000.** Whitman, Requard & Assoc., 1304 St. Paul St., Baltimore, engrs.

●**N. Y., Colonie**—Latham Water Dist., Wolf Rd., dam and reservoir at Stony Creek in Town of Clifton Park; filtration plant in town of Colonie. Approx. **$1,000,000.**

Okla., Britton—City, bond election Jan. 17, WW extens. **$109,500.** Kenneth Kloftkie, 2908 Classen St., Oklahoma City, consult. engr. CD 8/8.

Okla., Idabel—City, voted bonds, WW extens. **$205,000.** Rex Collins, McAlester, consult. engr.

Tex., Tyler—City, voted bonds, Nov. 22, c.i. watermains, **$150,000**; filtration plant, **$350,000.** T. C. Forrest, Jr., Praetorian Bldg., Dallas, consult. engr.

●**Tex., Wichita Falls**—City, City Hall, voted bonds, WW. **$1,250,000.** F. M. Rugley, c/o owner, city engr. CD 11/23.

Wash., Tacoma—City, City Hall, c.i. watermains on tideflats from Thorne and Port of Tacoma roads to Maxwell, Ashton and Ross Ways, **$361,240.** D. E. Morris, city engr. CD 8/2/45.

Wyo., Worland—City, plans by Black & Veatch, Eng. Co., 4706 Broadway, Kansas City, Mo., clarifying and softening water plant. **$450,000.**

Ont., Cobden—Municipality, WW program, **$102,000.**

Ont., Havelock—Municipality, WW sys. **$120,195.**

Ont., Highland Creek—Scarborough Twp., 1662 Kingston Rd., Scarborough, water imprvs. **$125,000.**

SEWERS, WASTE DISPOSAL

Ia., Iowa City—City, City Hall, sewage disposal sys., **$150,000.** H. R. Green Co., 417-1 St. S. E., Cedar Rapids, engr. CD 3/22/43.

Minn., New Brighton—Village, Lucile Olchefski, clk., voted **$140,000** bonds, sewerage sys., incl. pump. station, Toltz, King & Day, 1569 Pioneer Bldg., St. Paul, consult. engrs. CD 11/17.

O., Girard—City, City Hall, sewage disposal plant. **$350,000-$400,000.** Brooks D. Church, c/o owner, city engr.

Okla., Anadarko—City, bond election Feb. 7, sewage disposal plant **$3?,420.** C. F. Guernsey & Co., 1414 N. Robinson St., Oklahoma City, consult. engrs. CD 2/16.

Okla., Britton—City, bond election Jan. 17, sanitary sewer extens. **$162,000.** Kenneth Kloftkie, 2908 Classen St., Oklahoma City, consult. engr. CD 8/8.

Okla., Idabel—City, voted bonds, sanitary sewer extens. **$120,000.** Rex Collins, McAlester, consult. engr.

Tex., Tyler—City, voted bonds, sanitary sewer lines, **$200,000**; sewage disposal plant, **$300,000.** Freese & Nichols, 407 Danciger Bldg., Fort Worth, consult. engrs.

Tex., Wichita Falls—City, City Hall, voted bonds, storm sewers, **$250,000**; sanitary sewers, **$650,000.** F. M. Rugley, c/o owner, city engr. CD 11/23.

†**Va., Yorktown**—National Park Service, Dpt. Interior, 900 N. Lombardy St., Richmond, sanitary and sewage disposal sys.

●**Wash., Bremerton**—City, City Hall, city-wide separation of storm water from sanitary sewerage sys., **$1,500,000.**

Ont., Havelock—Municipality, sewerage sys. **$166,366.**

Ont., Highland Creek—Scarborough Twp., 1662 Kingston Rd., Scarborough, sewers. **$325,000.**

Ont., Preston—Town, E. G. Heise, clk., addnl., sewage disposal plant. Approx. **$150,000.** CD 2/11/44.

Ont., Richmond Hill (Toronto)—Village, R. Lynett, clk., erecting sewage disposal plant and installing sewers throughout municipality. Approx. **$230,000.** Proctor, Redfern & Laughlin, 11 Jordan St., Toronto, engrs. CD 11/12/48.

Ont., Woodridge—Village, E. W. Brown, clk., sewage disposal plant, installing sewers. Approx. **$230,000.** Proctor, Redfern & Laughlin, 11 Jordan St., Toronto, engrs.

BRIDGES

Tex., San Antonio—City, City Hall, Military Plaza, voted bonds, bridge constr. due to Expressway, **$200,000**; 5th St. steel, concrete bridge, **$80,000**; 7th St. steel, concrete bridge, **$80,000.** W. W. Toxey, c/o owner, city engr. CD 11/15.

Wash., Concrete—Skagit Co., Courthouse, Mount Vernon, steel bridge over Skagit River, **$700,000** bonds voted. C. C. Arnold, New World Life Bldg., Seattle, Zone 4, consult. engr. H. O. Walberg, co. engr. CD 11/15/48.

STREETS AND ROADS

Ill., Springfield—City, City Hall, c. conc. 3.4 mi. of N. 11 St., between 36 and 44 ft. wide, **$140,000-$175,000.** Charles Nelson, city engr. CD 9/2/43.

Ill., Springfield—Woodside Twp., Springfield, defeated **$138,000** bonds, imprv. 17 mi. twp. roads. Project abandoned. CD 8/8.

Tex., Dallas—Dallas Co. Courthouse, voted bonds, farm-to-market roads, Precinct 1, **$176,250**; Precinct 2, **$141,000**; Precinct 3, **$126,000**; Precinct 4, **$190,350.** H. Klinger, c/o owner, engr. CD 11/17.

●**Tex., San Antonio**—City, Jimmie Knight, Street Comr., City Hall, Military Plaza, voted bonds, Expressway inside city limits, **$2,800,000**; tie-in roads due to expressway, **$200,000**; construct south side road arteries, **$400,000.** W. W. Toxey, city engr. CD 11/11.

Tex., Tyler—City, voted bonds Nov. 22, street imprvs. and paving Frankston, Popler and Beckham Sts. **$200,000.** T. C. Forrest, Jr., Preatorian Bldg., Dallas, proj. engr. CD 9/9/46.

Tex., Wichita Falls—City, City Hall, voted bonds, street imprvs., paving. **$800,000.** CD 11/23.

●**Washington**—State Hy. Dpt., Olympia,

Snohomish Co.—5 mi. new road from Monroe to Maltby Rd. **$1,000,000.** W. A. Bugge, state hy. dir. CD 9/25/47.

EARTHWORK, WATERWAYS

Tex., Houston—City, City Hall, 900 Brazos St., bayou relocation, incl. ½ mi. from end at Farmer's Market to 300 ft. west of Capitol Ave. Bridge **$450,000.** Hugo Zapp, c/o owner, city engr.

●**Tex., Richmond**—Fort Bend Co., Richmond, drainage, county wide program. **$2,175,000.** Freese, Nichols & Turner, 2111 Natl. Standard Bldg., Houston, consult. engrs.

AIRPORTS AND AIRBASES

Tex., Dallas—HANGAR—Pioneer Air Lines, Inc., Republic Bank Bldg., hangar. **$275,000.**

†**Tex., San Antonio**—AIRPORT IMPRVS.— U. S. Govt., c/o Kelly Air Force Base, Col. Frederick Bell, maintenance mgr., expanding and revamping B-36 production line for engine repairing, **$150,000**; construction rein.-con. test stands, facilities for B-36 Bombers, **$750,000** at Kelly Field.

LATIN AMERICA

Argentina, Buenos Aires—Outoar Auomotores Argentinos, Cisitalia Turin, Italy and c/o Ministry of Industry & Commerce, Buenos Aires, plans plant to manufacture tractors and automobiles. **$300,000.**

Mexico, Chilpancingo — Municipal Govt. Palacio Municipal, Chilpancingo, Gro., Mexico, plans city hall. **$350,000.**

Mexico, Coyuca de Catalan C. Altamirano—Guerrero State Govt., Palacio del Estado, Chilpancingo, Gro., Mexico, plans bridge over Balsas River. **$150,000.**

Mexico, Mexico City—Construcciones de Aluminio, S.A., Ramon Guzman, 114-304, Mexico D. F., Mexico, plans aluminum structural materials factory. **$500,000.**

Mexico, Mexico City—Industrias Miron Cuenca, 23, Col. Alamos, Mexico, D. F., plans electric motor factory. **$400,000.**

Mexico, Mexico City—Ing. Modesto C. Rolland, Chapultepec, 444, Mexico, D. F., Mexico, plans diesel engine factory. **$600,000.**

Mexico, Mexico City—Mexican Govt., I.N.-B.A., Mexico, D.F., plans plastic arts museum. **$700,000.**

Mexico, Monterrey—Mexican Govt., Sria. de B.N., Mexico, D. F., Mexico, plans 100 family teachers home colony. **$500,000.**

Mexico, Saltillo—Christin and John Delmonte, c/o A. de Stefano, Centro Patronal, Saltillo, Coah, plans diamond cutting plant. **$500,000.**

PUBLIC BUILDINGS

Ark., Little Rock—ARMORY—Arkansas Military Dpt., State Capitol, Little Rock, armory on campus of Little Rock Junior College, **$436,000.**

Calif., Altadena—SCHOOL—Pasadena Bd. Educ., 351 S. Hudson Ave., Pasadena, plans by Harold J. Bissner, 3733 E. Colorado St., Pasadena, 31,770 sq. ft., Northwest School. **$380,000.**

Calif., Concord—SCHOOL—Mt. Diablo Unified School Dist., Concord, voted **$3,200,000** bonds, high and 100 elementary school classrooms. CD 10/28.

●**Calif., Eureka**—HOSPITAL—City, City Hall, plans by Frank T. Georgeson, 355 Stockton St., San Francisco, 2 story, 75-bed rein.-con. Redwood General Hospital addn., laundry and power plant, **$1,200,000.** CD 5/2/46.

Calif., Whittier—SCHOOL—City School District, 213 W. Hadley St., plans by W. H. Harrison, 816 W. 5 St., Los Angeles, school to be Known as Catholic Intermediate School. **$500,000.**

●**Colo., Denver**—HOUSING—City, City Hall, 2,500 addnl. public housing units, **$25,000,000.**

●**Colo., Golden**—CHEMISTRY — Colorado School of Mines, Golden, plans by Fuller, Fuller & Fuller, 508 Insurance Bldg., Denver, chemistry bldg. **$1,300,000.** CD 1/26/44.

Conn., East Hampton—HIGH SCHOOL— Town, School Bldg. Advisory Com., brick, steel, concrete high school. Approx. **$250,000.**

Conn., Newington—HOSPITAL—State of Connecticut, Real Assets Com., State Capitol, Hartford, plans by Schilling & Goldbecker, 405 Temple St., New Haven, brick, steel hospital addn., alterations, Cedarcrest Sanatorium, **$250,000.**

Conn., Plainville—SCHOOL—Town, Richard Gorelick, School Bldg. Comn., 139 Trumbull Ave., 2 story, bsmnt., brick, steel school, between Farmington and Cook Sts. **$250,000.** CD 12/6/44.

Conn., Southington—HOUSING—Southington Housing Auth., plans by Sherwood F. Jeter, Jr., 25 Lewis St., Hartford, single frame houses, Mountain View Terrace. **$250,000.**

Conn., Storrs—AGRICULTURAL INDUSTRIES—State, Raymond S. Thatcher, comptroller, 114 State Capitol, Hartford, plans by Frederic C. Teich, 252 Asylum St., Hartford, brick, steel, agricultural industries, University of Connecticut. **$350,000.** CD 1/19.

Fla., Sanford—HOUSING—Sanford Housing Auth., Sanford, 125 housing units. Approx. **$250,000.**

Fla., West Palm Beach—HOUSING—West Palm Beach Housing Auth., West Palm Beach, 250 housing units, Approx. **$250,000.**

●**Idaho, Arco**—REACTOR TESTING STATION—Atomic Energy Comn., 1901 Constitution Ave. N.W., Wash., D. C., plans by Blaw-Knox Constr. Co., 1525 Penna. Ave., Pittsburgh, Pa., reactor testing station with 700 ml fencing, 1,500 houses, WW, sewers, 70 mi. roads, buildings, etc. **$40,000,000.** CD 3/24.

●**Idaho, Arco**—TESTING STATION REACTOR—U. S. Atomic Energy Comn., 1901 Constitution Ave. N.W., Wash., D. C., ship propulsion reactor at Nuclear Testing Station. **$25,000,000.** CD 3/24.

Ill., Blue Island—SCHOOL ADDN.—School Dist. 130, North Junior High School, 123 and Greenwood Sts., plans by Childs & Smith, 20 N. Wacker Dr., Chicago, Zone 6, 1 story, 100x100 ft., steel, concrete, brick school addn. gymnasium. **$250,000.**

●**Ill., East St. Louis**—HIGH SCHOOL—Bd. Educ., School Dist. 189 of St. Clair Co., Bernice Goedde, pres., 240 N. 6 St., preliminary plans by Albert M. Goedde, 621 First Natl. Bank Bldg., Collinsville and Missouri Aves., rein.-con., brick, steel, stone high school. **$2,500,000-$3,000,000.** Bond election Apr. 4. CD 3/30.

Ill., Wilmette—LIBRARY—Village, Village Hall, plans by Holabird, Root & Burgee, 180 N. Wabash St., Zone 1, 2 story, steel, concrete, brick, stone library, **$350,000.**

Ind., South Bend—SCHOOL—Bd. School Trustees, 228 St. Joseph Ave., plans by R. Shambleau, 621 J.M.S. Bldg., 2 story, bsmnt., 153x200 ft., brick, stone, rein.-con., structural steel Perley School. **$275,000.**

Ia., Marengo—HOSPITAL—Iowa Co. plans by Dane Morgan, F. & M. Bank Bldg., Burlington, hospital. **$250,000.**

●**Ia., Newton**—SCHOOL—School Dist., Newton, voted **$1,200,000** bonds, high school. CD 11/29.

Ky., Henderson—SCHOOL—Co. Bd. Educ., Court House, plans by George F. Mahoney, 3667 Kenwood Ave., Memphis, Tenn., 2 story, brick, concrete block high school, concrete floors, **$660,000.**

●**Ky., Hopkinsville**—HOUSING—Hopkinsville Municipal Housing Comn., housing, **$3,200,000.**

●**La., Baton Rouge**—TEACHERS—Louisiana State University, Harold W. Stokes, pres., Baton Rouge, teachers bldg. **$1,000,000.**

La., Ruston—GYMNASIUM—State Bd. Educ., Baton Rouge, plans by Smith & Padgett, Monroe, gymnasium in Louisiana Polytechnic Institute, **$750,000.**

Md. Sykesville—HOSPITAL—State, Dpt. P. Imprvts., 200 W. Franklin St., Baltimore, 2 story, bsmnt., 30x120 ft. masonry hospital addn., concrete floor, Springfield State Hospital. **$300,000.** Henry Powell Hopkins, 10 E. Mulberry St., Baltimore, archt. James Posey, 10 E. Pleasant St., Baltimore, mech. engr. Van Rennsalaer Saxe, 100 W. Monument St., Baltimore, structural engr. CD 10/10.

Mass., Athol—SCHOOLS—Town, Bd. Educ., plans by Harry J. Korslund, 506 Washington St., Norwood, 2 story, bsmnt., brick, steel school addn. Sanders St. **$250,000;** brick school addn., Silver Lake, **$250,000.**

●**†Mass., Boston**—BANK—Federal Reserve Bank, 30 Pearl St., plans by Harbeson Hough, Livingston & Larson, 117 S. 17 St., Phila., Pa., and Kilham Hopkins & Greeley, 126 Newbury St., bank addn., alterations, **$2,000,000.** Gravelet & Duncan, 1700 Walnut St., Phila., Pa., consult. engr. CD 7/31/46.

Mass., South Hadley—SCHOOL—Town, Bd. Selectmen, Town Hall, plans by Morris W. Maloney, 200 Dwight St., Springfield, 2 story, bsmnt., brick, steel high school, **$500,000.**

Mass., Swampscott—HOUSING—Town of Swampscott Housing Auth., Swampscott, plans by Donald C. Goss, 131 State St., Boston, 2 story, bsmnt., garden apartments, Proj. 200-2, Approx. **$250,000.** CD 10/28/48.

Mont., Lewistown—HOME FOR AGED—State Bd. Examiners, Helena, Home for Aged, **$900,000.**

●**Neb., Norfolk**—MEDICAL—State Bd. Control, Lincoln, plans by Davis & Wilson, 225 Stuart Bldg., Lincoln, medical bldg. at Norfolk State Hospital. **$1,250,000.** CD 11/9.

●**N. M., Albuquerque**—HOSPITAL—Bernalillo Co. Bd. County Comrs. and Bureau Indian Affairs, Albuquerque, plans by Gordon Ferguson & Donald P. Stevens, 111 S. Amherst St., hospital. **$2,750,000.**

N. M., Portales—HOTEL—City, c/o Abe Ribble, chn., Portales, hotel. **$400,000.**

O., Ashland—HOSPITAL—City and Ashland Co., Ashland, 4 story Samaritan Hospital addn. **$470,000.**

O., Warren—AUDITORIUM, etc.—City, City Hall, auditorium and music hall. **$750,000.**

Okla., Coalgate—HOSPITAL—Coal Co., Coalgate, plans by R. F. Ferguson, Ada, hospital, **$250,000.**

Okla., Duncan—JAIL, etc.—City, Jim Whittley, mayor, Duncan, jail and warehouse. **$100,000.**

Okla., Norman—DORMITORY—University of Oklahoma, Norman, reconstruct dormitory. **$450,000.**

●**R. I., Cranston**—HIGH SCHOOL—City, Hoyt Lark, mayor, City Hall, plans by Creer, Kent, Mather, Cruise & Aldrich, 423 Industrial Bldg., Providence, 2 story, bsmnt., brick, concrete, steel Junior High School, incl. gymnasium with 2 swimming pools, Park Ave. near Roger Williams Park. **$1,500,000.** CD 8/15.

Tex., Borger—SCHOOL—Borger Independent School Dist., Borger, plans by Macon O. Carder, Fisk Bldg., Amarillo, 3-unit masonry school. **$250,000.** CD 3/18.

Tex., Brownwood—SCHOOL—Brownwood Independent School Dist., Brownwood, plans by Wilson & Patterson, Majestic Bldg., Fort Worth, school. **$400,000.** Henry Mount & Jack Doyle, Brownwood, consult. engrs. CD 12/8.

Tex., Commerce—HOUSING—Commerce Housing Auth., Commerce, plans by Boese & Harkrider, 423 N. Main St., Fort Worth, 50 low cost housing units. **$400,000.** CD 9/29.

Tex., Galveston—STUDENT UNION—University of Texas School of Medicine, c/o Bd. Regents, Galveston, plans by Mark Lemmon, (co-od. archt.) Tower Petroleum Bldg., Dallas, student union. **$250,000.**

Tex., Hebbronville—SCHOOLS—Jim Hogg Independent School Dist., Hebbronville, cancelled bond election Dec. 6, masonry school addn., remodeling, **$300,000;** intermediary school, **$350,000.** Hamon & Co., 715 S. Tancahua St., Corpus Christi, archts. CD 11/15.

Tex., Henderson—SCHOOL—Henderson Independent School Dist., Henderson, plans by Preston M. Geren, 905 N. P. Anderson Bldg., Fort Worth, masonry school addns. **$500,000.** CD 12/2.

†**Tex., Houston**—POST OFFICE—Pub. Bldgs. Admin., 18 and F. Sts. N.W. Wash. 25, D. C., post office remodeling, addns. **$305,000.** CD 11/26/45.

Tex., Kingsville—SCHOOL—Kingsville Independent School Dist., Kingsville, plans by Robert L. Vogler, 225 Oleander St., Corpus Christi, school. **$490,000.** CD 11/29.

Tex., Midland—HIGH SCHOOL—Midland Independent School Dist., Midland, plans by Wyatt C. Hedrick, 1st. Natl. Bank Bldg., Fort Worth, masonry Negro High School. Approx. **$250,000.**

Tex., Monahans—HOSPITAL—Ward Co., Monahans, hospital. **$250,000.**

●**Tex., Orange**—HOUSING—Orange Housing Auth., Orange, 200 low cost housing units. **$1,750,000.** CD 10/5.

Tex., San Antonio—HEALTH and SCIENCE—San Antonio Junior College, S. Alamo St., plans by Phelps & DeWees & Simmons, 1501 Majestic Bldg., health bldg. **$250,000;** science bldg. **$250,000.** Matthews & Kenan, 1908 Transit Tower, consult. engrs. CD 8/17.

●**Wash., Chehalis**—SCHOOL—School Bd., Chehalis, defeated bonds, Senior High School, **$1,600,000.** CD 11/17.

●**Wash., Longview**—SCHOOL—School Bd., bond election Feb. 4, Junior High School. **$1,750,000.** Wolff & Phillips, Pearson 4th Ave. Bldg., Portland, Ore., archts. CD 11/26/48.

Wis., Allouez—SCHOOL—School Dist. 1, 240 E. Allouez Ave., Green Bay, voted bonds school remodeling, addn. **$295,000.**

Wis., West Allis—SCHOOL—Bd. Educ., 7510 W. National Ave., Zone 14, plans by Lindl, Schutte & Assoc., 808 N. 3 St., Milwaukee, Zone 3, Jefferson School addn. **$315,-000.** CD 7/18/45; John Dewey, Jr. High School addn. **$270,000.**

B. C., Creston—HIGH SCHOOL—Trustees Creston School Dist. 5, Creston, frame, stucco Junior-Senior Consolidated High School. Approx. **$400,000.**

N. S. Bridgetown—HIGH SCHOOL—Bd. School Trustees, C. H. Pratt, Bridgetown, high school. Approx. **$300,000.**

●**N. S. Halifax**—SCHOOL—Municipality, Senior High School to replace St. Patricks Boys and Girls School, Ingleis St., **$1,250,000;** school in Gorsebrook Park to replace present College St. School, **$400,000.** CD 10/17/47.

N. S. Morriston—HIGH SCHOOL—Bd. School Trustees, A. MacGillivray, high school. Approx. **$250,000.**

N. S., New Waterford—SCHOOL—Municipality, high school. **$500,000.**

Ont., Ingersoll—HIGH SCHOOL—Town, R. E. Winslow, clk., defeated money by-law high school. Approx. **$531,000.** CD 12/6.

Ont., Long Branch (Toronto)—HIGH SCHOOL—Bd. Educ., W. H. Rutledge, chn., plans by J. B. Parkin Assoc., 717 Church St., Toronto, Crystal Crescent High School. Approx. **$385,000.** CD 5/2.

Ont., Ottawa—PLANT—Government of Canada, Hunter Bldg., central heating plant exten. **$500,000.** Dpt. P. Wks., Hunter Bldg., engrs.

Ont., Richmond Hill (Toronto)—High School Bd., Richmond Hill, plans by Page & Steele, 72 St. Clair Ave. W. Toronto, high school addn. Approx. **$360,000.** CD 1/4/46.

●**Ont., St. Thomas**—HOSPITAL—Memorial Hospital Bd., plans by Gorgan & Assoc., 515 Jarvis St., Toronto, hospital, Elm St. **$2,200,-000.** CD 12/3/43.

●**Ont., Sarnia**—HOSPITAL—General Hospital Comn., Sarnia, plans by Govan & Assoc., 515 Jarvis St., Toronto, hospital addn., North Milton St. **$1,500,000.** CD 2/19/47.

Ont., Sudbury—CIVIC CENTER—City, M. I. Keaney, secy., plans by J. B. Sutton, 81 Lorne St., concrete, steel, brick civic center. Approx. **$700,000.**

Que., Cap de La Madeleine—CITY HALL—Municipality, city hall. **$300,000.**

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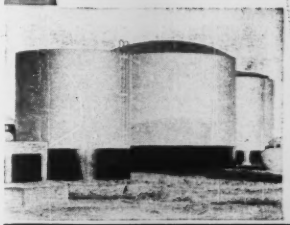

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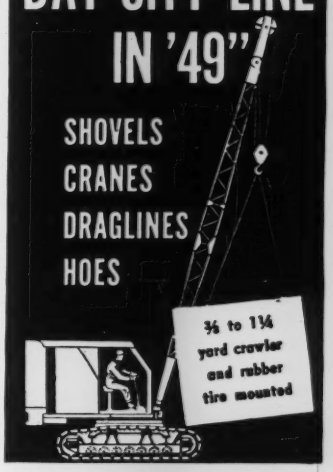

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BAY CITY
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Que., Mount Bruno—ADMINISTRATION—Girl's College School, 265 Craig St. W., Montreal, Mrs. R. R. Hutchison, pres., plans by Luke & Little, 1410 Guy St., Montreal, 3 story, administration bldg., 1 story school unit, incl. 4 classrooms, hospital, detention rooms, gymnasium, 4 cottages for students off Highway west side of Mountain. Approx. $500,000.

COMMERCIAL BUILDINGS

●**Colo., Denver**—STORE, etc.—Richard L. Marr, 2995 Cherry St., plans by Shaw, Metz & Dolio, 208 S. La Salle St., Chicago, Ill., 6 story store and office, 1544 Champa St. $2,000,000.

Conn., Bridgeport—SCHOOL—St. Peter's R. C. Parish, Rev. Leo M. Finn, pastor, 699 Colorado Ave., plans by Fletcher Thompson, Inc., 211 State St., brick, stone, steel parochial school, Colorado and Beechwood Aves. $250,000.

●**D. C., Wash.**—APARTMENT—The Boston House, Inc., 1024 Vermont Ave. N.W., plans by Berla & Abel, 1636 Conn. Ave. N.W., 8 story 270 unit, brick, cinder block, concrete apartment, 1709 Massachusetts Ave. N.W. $1,000,000.

Ill., Alton—APARTMENT HOUSE—Worden Apartments, Inc., c/o Lawrence J. Wenous, 107 Wood River, East Alton, three story, 51 unit, brick, concrete apartment, 4½ acre tract in 1100 block of Washington. $450,000.

Ill., Chicago—CONVENT—St. Cajetan Parish, 112 and Campbell Sts., plans by Barry & Kay, 53 W. Jackson St., Zone 4, 2 story, steel, brick, stone, concrete convent. $250,000.

Ill., Highland Park—PAVILION—Ravinia Festival Assn., Ravinia Park, plans by Holabird, Root & Burgee, 180 N. Wabash St., Chicago, Zone 1, 110x250 ft., structural steel, open side structure concert pavilion. $275,000.

Kan., Topeka—HOSPITAL—Meninger Foundation, 3617 W. 6 St., plans by Griest & Ekdahl, New England Bldg., hospital addn. $800,000.

Md., Laurel — HOUSES — Laurel Gardens, Inc., R. H. Bailey & Robert Greene, Denrike Bldg., Wash., D. C., plans by Arthur B. Allen, 3023 Fordham Rd. N.W., Wash., D. C., 600 single family 1½ and 2 story, bsmnt., frame, brick, concrete block dwellings.

Mass., Palmer—HOSPITAL—Wing Memorial Hospital, 491 No. Main St., plans by James H. Ritchie & Assoc., 38 Newbury St., Boston, 3 story, brick, steel, concrete hospital addn. N. Main St. $650,000.

●**Mass., Quincy**—DORMITORIES, etc.—Eastern Nazarene College, Wollaston St., Dr. Edw. S. Mann, pres., 23 E. Elm St., 2 dormitories, refectory, classroom unit, central heating plant, athletic field, on College Campus. $1,000,000.

Mich., Dowagiac — HOSPITAL — Sisters of St. Joseph, 513 Main St., plans by Maguolo & Quick, 1304 Macabees Bldg., Detroit, masonry, concrete, structural steel hospital. $600,000.

●**N. Y., New York**—HEADQUARTERS—Carnegie Endowment for International Peace, 522 Fifth Ave., Zone 19, plans by Harrison & Abramowitz, 45 Rockefeller Plaza, Zone 20, 12 story headquarters bldg., First Ave. between 46 and 47 Sts. $2,000,000.

●**N. Y., New York** — HOSPITAL — Memorial Hospital, 444 E. 68 St., clinic, childrens wing, operating rooms, recovery ward, physiology laboratory, 67 St. $5,250,000.

N. C., Winston-Salem—OFFICE—Security Life & Trust Co., 1281 W. 4 St., office. $500,000.

N. D., Linton—HOSPITAL—Linton Hospital Assn., Linton, hospital. $300,000.

Okla., Edmond—EDUCATIONAL, etc.—First Baptist Church, Edmond, plans by Conner & Pojesny, Kerr-McGee Bldg., Oklahoma City, Zone 2, educational bldg. and sanctuary. $350,000.

●**O., Lakewood** — OFFICE — White Sewing Machine Co., 1231 Main St., Cleveland, plans by Ernest Mc George & Wm. Hargett, engrs. and archts., 7016 Euclid Ave., Cleveland, 13 story, bsmnt. brick, block, steel office, 11720 Berea Rd. $3,500,000.

●**O., Marietta**—DORMITORY, etc.—Marietta College, Marietta, Stanley, C. Morris, chn. trustees, Charleston, W. Va., men's dormitory, renovating present dormitories, student union and dining halls, repairing, impvy. present bldgs. $1,250,000. CD 6/30.

●**O., Springfield**—DORMITORY, etc.—Wittenberg College, Dr. Clarence C. Stoughton, pres., N. Wittenberg Ave., library, men's dormitory, fine arts bldg., home economics bldg. Approx. $1,500,000.

O., Youngstown — LIBRARY — Youngstown College, Dr Howard H. Jones, pres., 410 Wick Ave., college library. $700,000.

Okla., Oklahoma City—RESIDENCES—Ed Carter, 4524 S. E. 22 St., 150 acre residential development, S. E. 15 and High Sts. $500,000.
Lee M. Bush & Co., Colcord Bldg., consult. engrs.

Okla., Oklahoma City—RESIDENCES—N. J. Reding, 3709 S. Western St., Zone 9, plans by Peter Grant, 923 N. Walker St., Zone 3, 50 single family residences, on Rancho Village. $500,000.

Okla., Sapulpa—HOTEL—Loraine Hotel, Sapulpa, reconstructing 4 story masonry hotel. Bartlesville, office. $275,000.

Okla., Tulsa—OFFICE—Waleo Eng. Co., Tuloma Bldg., plans by Thomas A. Holifield, Bartlesville, office. $275,00.

●**Pa., Pittsburgh** — SCIENCE — University of Pittsburgh, Forbes St., preliminary plans nearing completion by Trautwein & Howard, 1411 Walnut St., Phila., George Hubert Clopp Hale Science Bldg. $3,700,000. CD 7/1/48.

Tex., Abilene—CHURCH SANCTUARY—First Baptist Church Congregation, 232 Box 2259, 2 story, face brick, structural steel balcony frame, church sanctuary, rein.-con. fdn., cooling system. $500,000.

Tex., Abilene—EDUCATIONAL—St. Paul Methodist Church Congregation, Abilene, plans by Hughes & Olds, Box 2259, 2 story, 128x130 ft., stone exterior educational bldg., concrete frame and fdn. $250,000.

Tex., Corpus Christi—BANK—Corpus Christi Bank & Trust Co., 801 Leopard St., remodeling, expanding, masonry bank. $250,000.

Tex., Dallas—HOTEL—Melrose Hotel, 3015 Oaklawn St., reconditioning, remodeling 8 story hotel, air-conditioning. $250,000.
Landauer & Guerrero, 4801 Lemmon St., consult. engrs.

Tex., Fort Worth—SHOPPING CENTER—W. W. McKeever Realty Co., 2854½ W. Berry St., plans by Curtis McClure, 2854½ W. Berry St., 130x216 ft., frame, masonry shopping center, rein.-con. fdn. $250,000.

Tex., Houston —DWELLINGS— Builders, Inc., Commerce Bldg., 26 dwellings, Westridge Addn. $315,000.

Tex., Houston—HOUSING—Quail-Cut Co., c/o L. R. Pletz, 1426 N. Brazos St., frame housing, concrete pier fdns. $275,000.

●**Tex., Houston** — APARTMENT — Shepherd Gardens Apartments, c/o Max Krauss, 933 Minerva St., plans by Joseph R. Reynolds, 2518 Times Blvd., 450 unit wood frame, brick, shakes apartment, concrete slab fdn. $2,700,000.

●**Tex., Lubbock** — HOTEL — Hilton Hotels Corp., c/o C. N. Hilton, Lubbock, plans by Furr & Martin, Lubbock, 12 story, 250 room, steel frame [illegible] basmt., and beam fdn., 4 elevator motors, concrete pier heating and power plant. $200,000.

Tex., Odessa — HOTEL — Thomas Brandon, 1322 S. 2 St., 2 story, 140x196 ft. white stone front, brick facing, hotel. $300,000.

Tex., Sweetwater —DWELLINGS— Bailey Choate, Sweetwater, 65 dwellings, 99 acre addn. near Sweetwater Hospital. $455,000.

Wyo., Lovell—STAKE HOUSE—Church of Jesus Christ of Latter-Day Saints, 47 E. S. Temple St., Salt Lake City, Utah, stake house. $300,000.

Alaska, Juneau — COLLEGE — Methodist Union, Republic Bldg., Seattle 1, Wash., buildings for college. $500,000.

●**N. S., Centreville** — HOSPITAL — Reverend Sisters of Charity, North Sydney, hospital. $1,500,000.

Que., Montreal—NURSES HOME—Convalescent Hospital Rd., 3001 Kent Ave., Montreal, plans by Arthur Baldry & Assoc., 1440 St. Catherin St. W., 59x120 ft., rein.-con., steel, brick nurse's home. $250,000.

Que., Quebec City—HOSPITAL—Hospital St. Sacrament, Congregation of Sisters of Charity, St. Oliver St., hospital wing on 440 Chemin Ste. Foye. Approx. $500,000.

INDUSTRIAL BUILDINGS

Ga., Atlanta—PLANT—Southern Spring Bed Co., 290 Hunter St. S. E., plant addn. $200,000.

Ill., Chicago — FACTORY — Admiral Corp., 3800 W. Cortland St., plans by Paul Gerhardt, 449 W. Fullerton Pkwy., 2 story, steel, brick, concrete factory. $150,000.

Mass., Boston—WAREHOUSE—Northeastern Distributors, Inc., 588 Commonwealth Ave., plans by Feer & Nast, 22 School St., 1 and 2 story, brick, concrete, approx. 25,000 sq. ft. warehouse. $150,000.

N. M., Clovis—GRAIN ELEVATOR—Farmers' Co-operative Elevator, c/o Lester Snyder, chn. Bd. Directors, Clovis, 1,000,000 bu. grain elevator, masonry constr. $400,000.

Okla., Hennessey—GRAIN STORAGE — Farmers Union, Hennessey, 200,000 bu. grain storage elevator. $100,000.

Okla., Oklahoma City—WAREHOUSE, etc.—Lane-Wells Co., Apco Tower, Zone 2, plans by Conner & Pojesny, Kerr-McGee Bldg., Zone 2, warehouse and well servicing plant, 2800 N. Eastern Ave. $100,000.

Okla., Tulsa — GASOLINE PLANT — The Texas Co., Philtower Bldg., reconstruct gasoline plant. $750,000.

Tex., Houston—PLANT—Allied Chain Link Fence Co., 425 W. 25 St., plant, Homestead Rd. and Mason Rd. $100,000.

Tex., Houston—FACTORY—Olene Hanson, 4339 Pease St., factory, 15 acre tract at Enid and E. Montgomery Rd. Approx. $250,000.

Tex., Plainview—GRAIN ELEVATOR—Plainview Wheat Growers, Inc., J. C. Eiring, pres., Plainview, 300,000 bu. grain elevator. $125,000.

Tex., San Antonio—WAREHOUSES, etc.—Scobey Fireproof Storage Co., 315 N. Medina St., plans by Atlee B. & Robert M. Ayres, Transit Tower, warehouse, cold storage and quick freezing. $260,000; 200x200 ft. warehouse and industrial. $250,000. CD 12 7.

Tex., Sherman — WAREHOUSE — Kimbell Milling Co., Sherman, reconstructing Cotton Oil Mill Warehouses, No. 1 $150,000, and No. 2 $125,000.

Wash., Selah—PLANT—General Mills, 400 2 Ave., Minneapolis, Minn., apple processing plant. $500,000.

Man., Winnipeg — WAREHOUSE, etc. — Hobbs Glass Ltd., 57 York St., London, Ont., warehouse and office, 89 St. and 103 Ave. Approx. $100,000.

N. B., St. John—GARAGE—City Transit Co., Ltd., St. John, bus garage. $100,000.

N. B., St. Stephen—FACTORY—Gamong Brothers, Ltd., Mark St., 3 story, 60x150 ft., brick candy factory addn. Approx. $350,000.

Que., St. Henri De Taillon—QUARRY—National Granite, Ltd., St. Joseph de' Alma, various quarry bldgs., etc. at new block granite quarry, Approx. $100,000.

UNCLASSIFIED

Conn., Hartford—RAILROAD FACILITIES—State, Raymond S. Thatcher, comptroller, 114 State Capitol, plans by Mylchreest & Reynolds, 238 Palm St., railroad facilities incl. 10,000 ft. railroad tracks, spur tracks and sidings paving at site of Regional Market 40 acre plot, South Meadows. $425,000.

Conn., Wethersfield—ELECTRICAL CONSTRUCTION—State of Connecticut, Real Assets Com., State Capitol, Hartford, electrical construction, incl. conduit work, etc., Connecticut State Prison. $100,000. Arthur Flynn, Main St., Meriden, engr.

Ill., Shelbyville — DRIVE-IN THEATRE — Frisina Amusement Co., Dominic Frisina, pres., Roxy Theatre Bldg., 421½ S. 5 St., Springfield, 750 car drive-in motion picture theater with screen tower, projection and concession bldgs., walks, ramps, drives, lighting, etc. $225,000. Harry R. Jones, Lawrenceville, archt. and engr.

Kan., Anthony — DRIVE-IN THEATRE — Mrs. Hazel A. Cloud and Mr. and Mrs. Charles H. Barron, c/o Anthony Theatre, drive-in theatre, on site north of here.

●**Kentucky**—RURAL DISTRIBUTION LINES—Eastern Kentucky Electric Co-operative Corp., Shelbyville, power and transmission lines, generating plant, $30,000,000. Burns & McDonnell Eng. Co., 35 Troost St., Kansas City 2, Mo., engr. CD 12/5.

●**Louisiana - Arkansas - Illinois** — NATURAL GAS PIPELINE—Trunkline Gas Supply Co., P. McDonald Biddison, vice-pres., and ch. engr., 135 S. LaSalle St., Chicago, 3, Ill., 740 mi. natural gas pipeline to carry about 250,000,000 cu. ft. natural gas daily from Louisiana to Illinois for delivering to Panhandle Eastern Pipeline Co. Approx. $85,000,000, CD 9/23/48.

Montana—RURAL DISTRIBUTION LINES—Hill County Electric Co-operative, Havre, 468 mi. rural distr. lines, 2-way radio and sys. imprvs., Hill Co. $675,000. CD 7/9/48.

North Carolina — RURAL DISTRIBUTION LINES — Halifax Electric Membership Corp., Enfield, 100 mi. rural distr. lines and sys. imprvs., Martin Co. $200,000. CD 12/17/48.

Pa., Kutztown—STAIR TOWERS—General State Auth., 18 and Herr Sts., Harrisburg, town State Teachers College. $165,000. A. F. Kutz-Jones, c/o owner, ch. engr.

Pa., Millersville—ELECTRICAL DISTRIBUTION—General State Auth., 18 and Herr Sts., Harrisburg, electrical distr. sys., Millersville State Teachers College. $167,000. A. F. Jones, c/o owner, ch. engr.

South Dakota—RURAL DISTRIBUTION LINES—Charles Mix Electric Assn., Lake Andes, 49 mi. rural distr. lines and sys. imprvs., Charles Mix Co. $120,000. Scott Eng. Co., Watertown, consult. engr.

S. D., Huron—STATE FAIR GROUNDS—State Dpt. Purchase & Printing, Pierre, extens., changes, imprvs. to State Fair Grounds. $240,000. W. Loucks, c/o owner, state engr.

Texas—RURAL DISTRIBUTION LINES—Cherokee County Electric Co-operative Assoc., Cherokee Co. $265,000.

Texas—RURAL DISTRIBUTION LINES—Medina Electric Co-operative, Inc., Hondo, Medina Co. $820,000. CD 3/2/48.

Tex., Wichita Falls—PARKS—City, City Hall, voted bonds, parks. $200,000. F. M. Rugley, c/o owner, parks engr. CD 11/23.

Wash., Yakima—ATHLETIC PAVILION—Yakima Junior College, Yakima, athletic pavilion. $700,000. CD 7/1/48.

●**West Virginia**—NATURAL GAS PIPELINE—United Fuel Gas Co., 208 10 St., Charleston, certain changes in existing facilities. $1,326,000.

Wisconsin—RURAL DISTRIBUTION LINES—Price Electric Co-operative, Inc., Phillips, Co. $282,500.

Ont., Oakville—RECREATION CENTER—Municipality, plans by N. A. Armstrong, 19 Melinda St., Toronto, 80x185 ft., concrete, block recreation center, Trafalgar Park. $170,000. CD 3/4.

Que., Montreal North—GOLF COURSE—& Mathias, 1448 A Mountain St., Montreal, golf course, incl. clubhouse, etc., off Pie IX Blvd., Back River. Approx. $400,000. A. P. Blackburn, 19 Staynor Ave., Montreal, engr.

Sask., Regina — DRIVE-IN THEATER — Famous Players Corp., Ltd., Royal Bank Bldg., Toronto, Ont., drive-in theater on No. 1 Highway. $150,000.

CONSTRUCTION REPORTS—Second Section

WATER SUPPLY

BIDS ASKED

Ia., Clear Lake—B.A. 1/5—City, R. C. Ingersoll, clk., 500,000 gal. elevated water storage tank. Approx. $50,000. CD 11/14.

Tex., Fort Worth—B.A. 1/5—City, City Hall, 1 m. g. elevated steel water storage tank and tower. $115,000. Uel Stephens, c/o owner, city engr. CD 8/31/44.

January 6

La., Lafayette—City, watermain extens., incl. new watermains, water service connections, installing meters, altering existing water sys., etc. Plans deposit $35. J. B. McCrary Co., Inc., 22 Marietta St., Atlanta, Ga., engr. CD 10/25/45.

Tex., Midland—City, c.i. watermain extens., incl. 11,610 lin. ft. 12 in. pipe etc. $30,000. Plans deposit $5. CD 12/10/44.

Calif., San Diego—B.A. 1/10—City Council, Bayview Reservoir, incl. 30,000 cu. yds. excav., 25,000 cu. yds. embankment, 73,000 sq. ft. concrete roof, 78,000 sq. ft. conc. lining. Approx. $28,000. Plans deposit $10. Fred D. Pyle, hydraulic engr.

†**Calif., San Fernando**—Veterans Admin., Vermont Ave. between H and I Sts. N. W., Wash. 25, D. C., water supply for Veterans Administration Hospital, incl. one Water Pumping Station Bldg. 53, grading, plumbing, electrical work, outside services, etc. Spec. 4972, Proj. 12-4205.

Tenn., Clarksville—B.A. 1/10—City, WW sys., incl. Contr. I, furnishing, erecting 500,000 gal. steel elevated water storage tank and tower near intersection of 9 and College Sts., Contr. II, concrete pdns. for elevated tank and tower, two altitude valves and valve pits, approx. 8,900 lin. ft. 12 in. c.i. transmission and distr. lines, appurtenances. Plans deposit $25. J. Stephen Watkins, 145 E. High St., Lexington, Ky., consult. engr. CD 11/25.

Tex., Pampa—B.A. 1/10—City, WW. $30,000. Plans deposit $25. Roberts & Merriman, 218 N. Russell St., Pampa, engrs.

LOW BIDDERS

Ala., Mobile—City, Dec. 13, water supply exten., from Carruth Pipe Line Corp., Louisiana Bank Bldg., Baton Rouge, La., **$391,000.** CD 12/7.

Md., Hyattsville — Washington Suburban Sanitary Comn., Hamilton St., Dec. 5, Contr. 67N W, foundation and piping for addn. filtration unit and reservoir, Willis School, near Laurel, from Leo Butler Co., 8416 Georgia Ave., Silver Spring, **$114,556.** CD 10/10.

Tex., Arlington—M. S. Phillips & Son, Arlington, Dec. 5, WW, from W. T. Owens Machine Co., Arlington, **$29,000.** CD 12/6.

Tex., Elsa—City, Dec. 10, addnl. c. i. waterlines, from W. M. Linn, Pharr, labor **$6,372,** 15,000 lin. ft. pipe by owners, **$23,965,** total **$30,337.** CD 9/2/47.

Tex., Smithville—City, Nov. 7, WW imprvs., extens., from Fischer's, Frank Butcher Co., 203 Fredericksburg Rd., San Antonio, **$61,544.** Est. $90,000. CD 10/18.

CONTRACTS AWARDED

O., Mansfield—City, City Hall, water treatment plant, to The Richland Constr. Co., Inc., Mansfield, **$712,482.** Bids 11/17, awarded 11/29. CD 10/19.

Tex., Fort Worth—Ridgeway Manors, Inc., 2825 Crockett St., waterlines, own forces. Approx. **$30,000.** CD 12/1.

Tex., Houston—Mrs. P. T. McKling & Mrs. M. T. Burke, c/o Robert M. & E. S. Atkinson, engrs., 1st Natl. Bank Bldg., waterlines, to Bert Fryerson Co., Bellaire, Approx. **$30,000.**

Tex., Houston—Parker Bros., 5303 Navigation Blvd., c. i. waterlines, own forces. Approx. **$30,000.** Bids 11/15. CD 11/2.

SEWERS, WASTE DISPOSAL

BIDS ASKED

January 5

N. Y., Brooklyn—Dpt. P. Wks., Municipal Bldg., New York, Zone 7, Contr. 2, intercepting sewers, north branch, in connection with the Owl's Head Sewage Treatment Works. Plans deposit $10. CD 12/28/44.

January 10

†**Wash., Walla Walla**—Veterans Admin., Vermont Ave. between H and I Sts. N. W., Wash. 25, D. C., Incinerator Bldg. 107 for Veterans Administration Hospital, Spec. 926.

January 11

Calif., San Francisco—Dpt. P. Wks., City Hall, Southeast Sewage Treatment plant near Islais Creek, Spec. 20,600. Approx. $50,000. Plans deposit $100. Ralph Wadsworth, City Hall, city engr. CD 11/15/44.

LOW BIDDERS

Ky., Russell Springs—City, City Hall, sewage treatment plant and sanitary sewers, from G. E. Moore Co., Box 1069, Greenwood, S. C., Contr. 8, **$102,661,** Est. $173,539. Maurice S. Miller, McDowell Bldg., Louisville, engr.

N. C., Statesville—City, Dec. 9, 6½ mi. sewer line, from Gilbert Eng. Co., Statesville, **$68,-854.** CD 11/22.

S. C., Camden—City, Dec. 15, sanitary sewer imprvs., from Frank W. LaMotte, Columbia, **$118,302.** CD 12/2.

Tex., Fort Stockton—City, Dec. 13, sanitary sewerage sys. imprvs., extens., from Midwest Contg. Co., 403 S. Haskell St., Dallas, **$77,182.** Est. $60,000. CD 11/18.

CONTRACTS AWARDED

Ind., Greencastle—Bd. P. Wks., Greencastle, Div. A, sewage treatment plant and Div. B, sewerage sys., to Barney-Massa Co., Greencastle, **$205,600** and **$127,869** respectively; Div. C, lift stations, to A. & E. Constr. Co., Stone Park, Ill., **$53,129.** Bids 12/6, awarded 12/14. CD 10/27.

Ky., Louisville—Louisville and Jefferson Co., Metropolitan Sewer Dist., 614 W. Jefferson St., sewers and laterals begins at Craig Ave. and Manslick **3d** and go to Malcolm and Stoltz Sts., Contr. 93, to Louisville Asphalt Co., 240 E. Lee St., **$67,503.** CD 2 8.

●**New York**—President Queens Boro, 120-55 Queens Blvd., Kew Gardens, Zone 15, sewers, 141 Ave., Carson St., Springfield Blvd., 14 Ave., etc., to T. & T. Contr. Co., 1066 60 St., Brooklyn, Zone 19, **$784,849;** to Springfield Blvd., to Andrew Catapano & Co., 88-36 77 Ave., Glendale, **$948,864.** Bids 10/25. CD 10/31, under LB.

Tex., Fort Worth—Ridgeway Manors, Inc., 2825 Crockett St., sanitary sewers, own forces. Approx. **$50,000.** CD 12/1.

Tex., Houston—Mrs. P. T. McKling & Mrs. M. T. Burke, c/o Robert M. & E. S. Atkinson, engrs., 1st Natl. Bank Bldg., sanitary and storm sewers, to Bert Fryerson Co., Bellaire, Approx. **$55,000.**

Tex., Houston—Parker Bros., 5303 Navigation Blvd., sanitary sewers, own forces. **$55,-000.** Bids 11/15. CD 11/2.

BRIDGES

BIDS ASKED

STATE HIGHWAY LETTINGS

January 4	**January 12**
Missouri	**California**
January 6	**New Jersey**
Pennsylvania	**January 13**
January 10	**North Dakota**
Texas	**January 20**
January 11	**Alabama**
Texas	

La., New Orleans—B. A. 1/10—City, Dpt. P. Finance, Purchasing Div., City Hall, N. Galvez St. Overpass, Proposal 12,473.

LOW BIDDERS

Louisiana—State Hy. Dpt., Baton Rouge, Dec. 14, 0.209 mi. rein.-con. deck girder bridges, grading, concrete paving approaches, etc., Jonesboro-Hodge Hy., State Rte. C-2107, State Proj. 825-05-08, Jackson Parish, from W. R. Aldrich & Co., Box 1751, Baton Rouge, **$103,581.** CD 11/18.

●**Tennessee**—State Hy. Dpt., Nashville, Dec. 16, 16 bridges on sect State Hy. 28 from Sequatchie-Bledsoe Co. line and exten. to the south city limits of Pikeville, 0.13 mi. Proj. No. F-028-1 (7), Bledsoe Co., from Garrett & Farris, 3857 Kingston Pike, Knoxville, **$187,492***** bridge, approaches over Hiwassee River on State Hy. 33, approx. 2 mi. west of the Polk-McMinn Co. line, 0.114 mi. Proj. No. F-039-1 (7), Polk Co., from Foster-Creighton Co., American Natl. Bank Bldg., Nashville, **$154,872***** bridge, approaches over Big Goose Creek on State Hy. 25, approx. 1½ mi. east of Hartsville, 2.185 mi. Proj. No. F-025-1 (1), Trousdale Co., from McDowell & McDowell, 4805 Wyoming Ave., Nashville, **$152,637***** bridge over Hatchie River and excavation of channel on State Hys. 14 and 54 at the Tipton-Haywood Co. line, approx. 13 mi. west of Brownsville 0.545 mi. Proj. No. F-046-1 (1), Tipton and Haywood Counties, from Dunn Constr. Co., 1st Natl. Bldg., Birmingham, Ala., **$647,308***** bridge, approaches over Sams Creek on Secondary Hy. 6151, near Lillamay, 0.87 mi. Proj. No. S 6151 (2), Cheatham Co., from Anderson-Gregory Co., Maxwell House, Nashville, **$58,577.** CD 11/28.

Wisconsin—State Hy. Comn., Madison, Dec. 16, Contr. 1, structure B-52-2, Rock River Bridge and approaches 0.251 mi. The Afton-Shopiere Rd., Town Road from Sta. 17 plus 00 to Sta. 30, plus 25.7 Projs. SO626 (1) and SO626 (2), Rock Co., from Martin & Carl Dey, Shawnao, **$76,769***** Contr. 1, Structure B-67-8, Big Bend Bridge and approaches 0.235 mi. The South Co. Line & Big Bend Rd., S. T. Hy. 24 from Sta. 12 plus 50 to Sta. 24 plus 90, Proj. S 0818 (3), Waukesha Co., from Adolph Cherney, Maribel, **$61,881***** Contr. 1, structure Bridge 880 and approaches 1.568 mi. The Shoto-Okauchee Rd., U. S. H. 16 from Sta. 74 plus 00 to Sta. 159 plus 69.5, Proj. F 06-1 (20), Waukesha Co., from A. B. Lynch Co., 740 N. Plankinton Ave., Milwaukee **$132,649***** Contr. 1 structure B-29-8, The Necedah Bridge and approaches 0.474 mi. S T. Hy. 21 from Sta. 2 plus 84 to Sta. 28 plus 00 Proj. T 0500 (6) Juneau Co., from Highway Supply Co., Webster, **$157,026.** CD 12/1.

CONTRACTS AWARDED

California — State Div. Hys., **Los Angeles,** rein.-con. box girder bridge for highway separation on Hollywood Parkway inbound over Santa Monica Parkway outbound and Heliotrope Dr., Los Angeles, Los Angeles Co., to Charles MacCloskey, 112 Market St., San Francisco, **$503,890.** Bids 12/8. CD 12/15, under LB.

Calif., Los Angeles—Southern Pacific Co. 610 S. Main St., 448 ft. long semi-cantilever structural steel foot bridge 7 ft. wide 2900 block San Fernando Rd. Owner builds, **$54,-000.**

Kansas—State Hy. Comn., Wichita, bridge Station 43 plus 30, 85 ft., 110 ft., 85 ft. continuous steel beam spans, Project 18 S 336 (1), Cowley Co., to Freeto Constr. Co., Inc., Pittsburg, **$59,863.** Bids 12/7. CD 11/17.

STREETS AND ROADS

BIDS ASKED

STATE HIGHWAY LETTINGS

January 4	**January 11**
Missouri	**California**
January 5	**Texas**
Massachusetts	**January 12**
January 6	**New Jersey**
Pennsylvania	**January 20**
January 10	**Alabama**
Texas	

LOW BIDDERS

Louisiana—State Hy. Dpt., Baton Rouge, Dec. 14, grading, small drainage structures, cut back asph. aggregate base course, b. conc. tr., etc. 6.264 mi. S. P. 23-02-13 Fed. Aid Proj. F-224 (4), Burr's Ferry-Caney Hy., located on State Rte. 21 and grading small drainage structures seven 24 in. rein.-con. deck girder span bridge, cutback asph. aggregate base course, b. conc. tr., etc. 4.695 mi. State Proj. 29-02-14, Fed. Aid Proj. F-24 (5), Vernon Parish, from Austin Bridge Co., Box 1590, Dallas, Tex., **$209,192** and **$174,414** respectively. CD 11/18.

●**Tennessee**—State Hy. Dpt., Nashville, Dec. 16, from Anderson-Gregory Co., Maxwell House, Nashville, stone surf. 6.88 mi. sect. State Hy. 26, from east city limits of Smithville and exten. to DeKalb-White Co. line, Proj. F-026-1 (5) and F-026-1 (6), DeKalb Co. **$332,457;** surf. gravel, incl. 4 bridges 10.347 mi. sect. State Hy. 76, from point near Loosahatchie River, north of Somerville and exten. to point approx. 1½ mi. south of Fayette-Haywood Co. line, incl. spur on State Hy. 59 toward Braden, Proj. F-047-1 (3), Fayette Co., **$234,109***** from A. B. Long, Harriman, surf., incl. bit. materials 11.071 mi. sect. Secondary Hy. 2430, from Madisonville and exten. to Loundon-Monroe Co. line, Proj. S-2430 (2), Monroe Co., **$121,085;** surf., incl. bit. materials 9.185 mi. sect. Secondary Hy. 2395, from junction of State Route 61 in Oliver Springs, exten. to Sulphur Springs, Proj. S-2395 (1), Anderson Co., **$99,813;** gravel or crushed stone surf. incl. 3 bridges 6.38 mi. sect. of State Hy. 62 from Junction of State Hy. 116 and exten. to junction of State Hy. 61 in Oliver Springs, Proj. No. S-062-1 (1), Morgan and Roane Counties, **$98,144.**

From C. R. Pickle & Son, Shelbyville, crushed stone surf. 6.963 mi. Secondary Hy. 4263, from Pikeville and exten. to Swafford's Store, Proj. No. S-4263 (1), Bledsoe Co., **$72,-980;** stone surf. 2.825 mi. Gravel Hy. 4263 (Manson Rd.), from State Hy. 52, one mi. northeast of Indian Creek and exten. to Mason Post Office, Projects R-5051-(1), R-5052 (1) and R-5053 (1), Fentress Co., **$52,507**** from Oman Constr. Co., Arklen Park, Nashville, stone or gravel surf. incl. incl. 4 bridges 8.458 mi. sect. State Hy. 6, from junction of State Hy. 85, north of Gainesboro and exten. to North Springs, Proj. No. S-056-(1) Jackson Co., **$313,731***** from Marion Constr. Co., Curtiswood Lane, Nashville, stone surf. incl. 3 bridges 6.815 mi. sect. Secondary Hy. 6213, from junction of State Hy. 10 at Meadowville and exten. to the Macon-Smith Co. line, Proj. No. S-6213 (1), Macon Co., **$141,619***** from Southern States Paving Co., 300 44 Ave. N., Nashville, surf. incl. bit. materials 6.35 mi. sect. Secondary Hy. 4293, from junction of State Hy. 50 in Dechard and exten. northerly to Elk River, Proj. S-4293 (1), **$53,675***** from Robert D. Jones, Murfreesboro, stone surf. 3.47 mi. sect. Secondary Hy. 6162, from point approx. 1 mi. southeast of Carthage, Junction and exten. to Lancaster, Proj. S-6162 (2), Smith Co., **$73,262.**

From L. B. Clark, Cotton Exchange Bldg., Memphis, stone surf., incl., one bridge 3.093 mi. sect. State Hy. 36, from point near Ernestville and exten. northeasterly toward Erwin, Proj. No. F-036-1 (2), Unicoi Co., **$228,602***** from Nelco L. Teer Co., Durham, N. C., grading, drainage, incl. 3 bridges 4.98 mi. sect. State Hy. 73 from Gatlinburg and exten. to Little Pigeon River, Proj. No. F-066-1(1), Sevier Co., **$189,383***** from Ralph E. Mills Co., 410 Ann St., Frankfort, Ky., grading, drainage, incl. one bridge 10.43 mi. sect. State Hy. 34, from point approx. 3 mi. east of Chuckey and exten. to Jonesboro City limits, Proj. F-034-2 (1), Greene and Washington Counties, **$612,164***** from Ralph Rogers & Co., 720 Argyle Ave., Nashville, wid'n., resurf. with bit. materials 22.148 mi. sect. State Hy. 11 from Farmington and exten. to intersection of State Hy. 16 at Kirkland, Proj. No. SAP-523-E, Marshall, Rutherford and Williamson Counties, **$410,188***** from H. E. Wolfe, St. Augustine, Fla., traffic bound roadway material surf. 4.284 mi. sect. Secondary Hy. 4238, from Hartsaw Cove Creek, approx. 7 mi. south of Livingston and exten. toward Monterey to Beaver Hill, Proj. No. SAP 765-A, Overton Co. **$120,920***** from Wesco Paving Co., Volunteer Bldg., Chattanooga, wid'n. bit. materials resurf. 4.966 mi. sect. State Hy. 8

from south city limits of Chattanooga (Bachman Tunnel) and exten. to Georgia State Line, Proj. SAP 766-A, Hamilton Co., **$277,768***** from J. B. Michael & Co., 1021 Heywood St., Memphis, wid'n., bit. materials resurf. 9.93 mi. State Hy. 22 between Huntington and McKenzie, Proj. SAP 768-A, Carroll Co., **$203,-183.** CD 11/28.

CONTRACTS AWARDED

California—State Div. Hys., Los Angeles, plant mix on untreated rock surf. and rein.-con. bridge between 1.5 mi. west of Calabasas and 1.6 mi. east of Malibu Junction, Los Angeles Co., to Basich Bros. Constr. Co. & Basich Bros., Box 151, Alhambra, **$719,699.** Bids 11/25. CD 12/1, under LB.

Kansas—State Hy. Comn., Mankato, grading 6.008 mi. 128-45 S 150 (2), Jewell Co., to Wentz Constr. Co., Concordia, **$53,802.** Bids 12/2. CD 11/17.

●**Ohio**—State Hy. Dpt., Columbus, Zone 15, c. conc. paving, construct continuous concrete slab bridges with concrete deck and substructure (3 spans) BR GA-35-82 and 3 span BR GA-35-86 and one span BR GA-35-90, steel beam bridge with concrete deck and substructure, U. S. R. 35, Gallia Co., to Carl Myers & Co., 337 S. High St., Columbus, **$1,145,760,** est. $1,378,600***wid'n. and c. conc. and plain c. conc. paving, Type T-70 and T-71, incl. 3 span continuous concrete slab concrete substructure, Bridge No. AL-30-54A, U. S. R. 30N, Allen Co., to Hinton Constr. Co., 638 N. Main St., Celina, **$216,217,** est. $255,000***c. conc. paving, Type T-71, U. S. R. 224, Ashland and Medina Counties, to The Hollinger-Davidson Co., 85 E. Thornton St., Akron, **$237,601,** est. $298,000***wid'n., asph. conc. resurf, Type T-35, U. S. R. 127, Butler and Hamilton Counties, to Don S. Cisle Contractor, Inc., 1st. Natl. Bank Bldg., Hamilton, **$199,-563,** est. $234,100***drainage facilities, wid'n. and resurf. Type T-35, two 1 span concrete slab bridges, Bridge Nos. SC-139-46 and SC-139-48, to Scioto Co., to Frowine Constr. Corp., 821 Prospect St., Portsmouth, **$123,575,** est. $122,540***c. conc. and asph. conc. wid'n. and asph. conc. surf. Type T-35, S. R. 15, U. S. R. 24, U. S. R. 66, Defiance Co., to Arthur S. Langenderfer, Inc., 4690 Bancroft St., Toledo, **$124,238,** est. $133,100*** grading, draining, paving, Type T-35, continuous steel beam with concrete deck and an oconcrete substructure, Br. PR-503-21218, S. R. 503, Preble Co., to Joseph W. Vollmar, 10 Augspurger Ave., Hamilton, **$51,845,** est. $75,000***grading, draining, paving, incl. 3 bridges, S. R. 5, Marne Twp., Clyde L. Moore, Inc., Lowellville, **$133,776,** est. $185,000. Grand total $2,242,575. Bids 12/13. CD 12/1.

Pa., Philia.—Dpt. P. Wks., City Hall Annex, paving various locations, Schedules B-10 and G, to General Asphalt Paving Co., 6851 Rising Sun Ave., **$195,151;** Schedules B-6, B-7, B-11, D, to Harry C. Erb, 1505 Race St., **$50,564.** Paul Murray, Highways Chief. Bids 11/25.

Tex., Fort Worth—Ridgeway Manors, Inc., 2825 Crockett St., street constr. and asph. paving, town forces, **$55,000.** CD 12/1.

Tex., Houston—Mrs. P. T. McKling & Mrs. M. T. Burke, c/o Robert M. & E. S. Atkinson, engrs., 1st Natl. Bank Bldg., street constr. and paving, to Bert Fryerson Co., Bellaire. Approx. **$62,000.**

Tex., Houston—Parker Bros., 5303 Navigation Blvd., street constr. and asph. paving, own forces. Approx. **$50,000.** Bids 11/15. CD 11/2.

EARTHWORK, WATERWAYS

BIDS ASKED

†**Nebraska**—B.A. 1/3—Bureau Reclamation, Dpt. Interior, Mc Cook, 9 radial gates and 9 radial gate hoists, Spec. R7-89 (Region 7), Missouri River Basin Proj.

New York—B. A. 1/3—Henry A. Cohen dir. Bureau of Contracts & Accounts, Dpt. P. Wks., Governor Alfred E. Smith State Office Bldg., Albany, resurf. Lock Walls, Lock 7, Erie Canal, town of Niskayuna, Schenectady Co., Contr. M-95. Approx $129,280; adv ENR 12/29.

January 4

†**Colorado**—Bureau Reclamation, Dpt. Interior Bldg. 1-A, Denver Federal Center, Denver, earthwork, concrete lining and structures for Poudre supply canal, Station 18 plus 54.96 to 294 plus 60, Colorado-Big Thompson Proj., near Fort Collins, Spec. 2855. L. N. McClellan, ch. engr.

†**Louisiana**—U. S. Eng., Vicksburg Dist., P. O. Box 60, Vicksburg, Miss., Big and Colewa Creeks Channel Imprv., Mile 60.00 to Mile 69.69, Richland and West Carroll Parishes, CIVENG-22-052-50-90.

January 5

†**Md., Annapolis**—Pub. Wks. Office, U. S. Naval Academy, restoration of bulkhead and services, Small Craft Facility, Spec. 23422.

O., Dayton—B.A. 1/5—Comrs. Montgomery Co., Jessie Gano, clk., Courthouse, Baker Ditch (closed drain) Perry Twp., laying 265.8 lin. ft. concrete pipe, connecting laterals, headwall and making area suitable for farming.

†**Tennessee**—U. S. Eng., P. O. Box 97, Memphis, Zone 1, three 3-row permeable pile dikes, containing approx. 72,000 lin. ft. treated piles, on left bank of Mississippi River at Head of Presidents Island, city of Memphis, Shelby Co., CIVENG-46-04[50-72.

†**Tennessee**—U. S. Eng., P. O. Box 97, Memphis, Zone 1, approx. 120,000 cu. yd. compacted embankment, one concrete, brick manhole, 300 lin. ft. 15 and 18 in. corrugated metal pipe, 90 lin. ft. 30 in. half-round concrete pipe and approx. 8,000 sq. yd. sodding, approx 1,250 ft. west of intersection existing portion of approach embankment with Riverside Blvd., approx. 800 ft. south of intersection of Riverside Blvd. and Wisconsin Ave. exten. southward for approx. 700 ft. along edge of the bluffs to point approx. 100 ft. south of Pure Oil Company's dock road, CIVENG-40-041-50-76.

†**Wyoming and Nebraska**—Bureau Reclamation, Dpt. Interior, Casper, Wyo., erecting an elevator walkway on face of Pathfinder Dam near Alcova, Wyo., North Platte Proj.

January 6

†**Iowa**—U. S. Eng., 1709 Jackson Ave., Omaha, Neb., pumping station and sewer, Unit V, Sect. 5, at Carter Lake, Flood Control adjacent to Missouri River, CIVENG-25-066-50-101. CD 12/6, under LB.

†**Texas**—B. A. 1/6—U. S. Eng., 606 Santa Fe Bldg., Galveston, dredging Clear Creek and Clear Creek Lake between Galveston Bay and west end of Clear Lake, Harris, Galveston and Chambers Counties, Inv. No. CIVENG-41-243-50-122. $10,000. CD 11/22/43.

†**Texas**—B.A. About 1/10—U. S. Eng., 606 Santa Fe Bldg., Galveston, embankment slope protection, San Angelo Dam and Reservoir, on North Concho River, Tom Green Co., Inv. No. CIVENG-41-243-50-138.

January 10

†**Louisiana**—U. S. Eng., foot of Prytania St., New Orleans, Zone 9, 2,300 cu. yd. concrete capping cast in place or pre-cast on portion West Jetty at Southwest Pass, Mississippi River, located between Miles 18 and 20 below Head of Passes in Plaquemines Parish, approx. 115 mi. from New Orleans, CIVENG 16-047-50-144.

†**Louisiana**—B. A. 1/10—U. S. Eng., Vicksburg, Miss., Bayou Lafourche Imprv. Reach 3, Mile 11 to Mile 17, channel excav. and realignment, Caldwell Parish, CIVENG 22-052-50-96.

La., Winnsboro—B.A. 1/10—Franklin Parish Police Jury, Winnsboro, approx. 291,300 cu. yd. channel excav., 2.71 mi. channel restoration, 23.46 acres clearing, grubbing.

†**Oregon**—B.A. 1/10—U. S. Eng., 19 E. Poplar St., Walla Walla, Wash., furnish, install and test unwatering pump and appurtenances for Washington shore fishway, McNary lock and dam, CIVENG-45-164-50-76.

†**Oregon**—U. S. Eng., 628 Pittock Block, Portland, Zone 5, Concrete Guard Pier 4 at upper entrance The Dalles-Celilo Canal, Columbia River, Serial No. CIVENG-35-026-50-705.

†**Texas**—B.A. 1/10—U. S. Eng., 606 Santa Fe Bldg., Galveston, repairing North and South Jetties, Fort Aransas, Aransas and Nueces Counties, Inv. No. CIVENG-41-243-50-98. $100,000. CD 11/22/43.

†**Montana**—B. A. 1/12—Bureau Reclamation, Dpt. Interior, Bldg. 1A, Denver Federal Center, Denver, Colo., Missouri River Basin Proj., 2 frame assemblies for river outlets at Canyon Ferry Dam, Spec. 2861, L. N. McClellan, ch. engr.

†**Texas**—U. S. Eng., 606 Santa Fe Bldg., Galveston, excavation spillway and construct east portion embankment, Garza-Little Elm Dam and Reservoir, Elm Fork of Trinity River, Trinity River and Tributaries, Inv. No. CIVENG-41-243-50-107. CD 11/11.

LOW BIDDERS

†**Illinois**—U. S. Eng., 326 U. S. Court House & Custom House, 1114 Market St., St. Louis 1, Mo., Dec. 21, clearing strips Grand Tower Drainage and Levee District (Proj. Item II-H) Preston Levee and Drainage District (Project Item II-B) Jackson and Union Counties, Inv. No. CIVENG-23-065-50-41, from E. T. Simonds Contr. Co., Carbondale, **$63,578.** Est. $65,397. CD 11/29.

†**Montana**—U. S. Eng., Fort Peck, rejected bids Nov. 8, open shelter bldg. and other public use facilities, $10,000. Crew Site, Fort Peck Reservoir, CIVENG 24-016-50-12. CD 10/19.

Tex., Munday—City, Nov. 21, 203,000 cu. yd. drainage ditch, from Van Earl Sams, Childress, 15c per cu. yd. C. R. Elliott, c/o owner, city engr.

†**Washington**—Bureau Reclamation, Dpt. Interior, Coulee Dam, Dec. 14, earthwork, asph. membrane lining, pipelines and structures for area E-1, laterals and sublaterals, except lateral EL 20 and sublaterals, East Low Canal lateral, Schedule 1, precast-concrete pipelines and structures, from J. J. Collins Concrete & Steel Pipe Co., 2848 S. Columbia Blvd., Portland, Ore., **$533,811,** est. $572,476; Schedule 2, open laterals and sublaterals, asphaltic membrane lining and structures, from McLaughlin, Inc., Ford Bldg., Great Falls, Mont., **$356,018,** est. $390,636.

CONTRACTS AWARDED

†**Alabama**—U. S. Eng., P. O. Box 1169, Mobile, Zone 7, overburden excavation for Demopolis Lock and Dam, Demopolis Black Warrior, Warrior and Tombigee Rivers, to Kershaw Mining Co., 300 S. 41 St., Birmingham, **$508,730.** Bids 11/26. CD 12/14, under LB.

●†**California**—Bureau Reclamation, Dpt Interior, Friant, earthwork, concrete lining and structures, Station 6076 plus 15 to Station 6395 plus 10, Friant-Kern Canal, from 7 mi. N. E. to 10 mi. south of Delano, Central Valley Proj. Spec. 2834, to Peter Kiewit & Sons, Box 872, Porterville, **$3,176,814.** Bids 12/13. CD 11/20, under LB.

†**Illinois**—U. S. Eng., P. O. Box 97, Memphis, 1 Tow., Cairo Floodwall Imprvs. on Ohio River Front, Cairo, Alexander Co. and extends from 14 to 8 Sts., Inv. Serial No. CIVENG-40-041-50-57, to Edgar Stephens & Sons, Inc., Cairo. Approx. **$97,478.** Bids 11/29. CD 11/1.

AIRPORTS AND AIRBASES

BIDS ASKED

January 5

†**Ga., Atlanta**—AVIATION GASOLINE FACILITIES—U. S. Navy Charleston Naval Base, Charleston, S. C., installing aviation gasoline facilities incl. railroad spur track, concrete paving, tank car unloading facilities, pump house with gasoline motor, electrically driven pumps, flood lighting, culverts, grading, underground pipelines, etc. at Atlanta Naval Air Station, NOY 19355, Spec 23084. Plans deposit $10.

Calif., Hanford—PARKING APRONS, etc.—B.A. 1/9—City, City Hall, parking aprons, runways, taxiways etc. at Municipal Airport, Approx. $50,000. Plans deposit $10. CD 12/11/44.

†**Calif., Muroc**—TEST STRUCTURES, etc.—B.A. 1/10—U. S. Eng., 751 S. Figueroa St., Los Angeles, Test Structures 13-15 rein.-con., steel 1-11 Machine Shops, Control Stations 1-7 roads, Eng.-04-35-05-10, **$1,500,000;** service bldgs. Eng.-04-353-50-11, both for Rocket Engine Test Station. **$250,000.**

LATIN AMERICA

Brazil, Sao Paulo—Cia. Brazileira de Cimento Portland Perus, Sao c/o Canadian Foreign Investment Corp., 1110 Beaver Hall Hill, Montreal, Que., Canada, will take bids about January for stripping 2,000,000 cu. meters overburden from limestone deposit, at cement plant, near here.

PUBLIC BUILDINGS

BIDS ASKED

January 3

Va., Fredericksburg—INFIRMARY—At office Dr. Morgan L. Combs, pres. Mary Washington College, Fredericksburg, infirmary and equip. for State of Virginia, Richmond. $300,000. J. Binford Walford & O. Pendleton Wright, 103 E. Cary St., Richmond, archts. CD 10/11/44.

Ind., Newcastle—SCHOOLS—B.A. 1/4—Bd. School Trustees and Henry Twp. Bldg. Corp., New Castle, 1 story, irregular shaped, brick, stone, rein.-con., structural steel, Wilbur Wright School, 18 and Washington Sts., $350,000; 1 story, bamnt., irregular shaped, brick, rein.-con., structural steel, Sunnyside School, $250,000. Plans deposit $10 each. Walter Scholer & Assoc., 111 4 State St., Lafayette, archts. CD 8/12.

Miss., Wiggins — HOSPITAL — B.A. 1/4 — Stone Co., Wiggins, hospital. Plans deposit $25. Smith & Lachin, Legion Bldg., Gulfport, archts.

N. J., Newark—STATION—B. A. 1/4—At Office Chief Engineer New York Port of Auth., 111 Eighth Ave., New York, 11, N. Y., constr. maintenance and repair station for Newark Union Motor Truck Terminal, Contr. NJT-9. Plans deposit $10.

Pa., Harrisburg—SCHOOL—B.A. 1/4—Harrisburg School Bd., 121 Chestnut St., general constr., plumbing, heating and ventilating, electrical work 600-pupil school, Hale St. and Harris Terrace, $650,000. Plans deposit $25. L. Murray & Assoc., 1600 N. 2 St., archts. CD 5/31.

N. B., Fredericton—HEADERHOUSE—B.A. 1/4—J. M. Somerville, secy. Dpt. P. Wks., Hunter Bldg., Ottawa, Ont., headerhouse for Science Service Division, Dpt. Agriculture, Approx. $100,000. Plans deposit $15. G. Brault, c/o owner, archt.

Ont., Barrie—SCHOOL—B. A. 1/4—Page & Steele, archts., 72 St. Calir Ave., W., Toronto, part one and two story, 200x300 ft. structural steel, brick Toronto Style School, concrete fdns., for Bd. Educ., H. Felt, secy., Barrie. Approx. $350,000. CD 12/1.

Ont., Trenton—SCHOOL—B. A. 1/4—A. J. E. Smith, engr., Central Mortgage & Housing Corp., 395 Fleet St. W., Toronto, 24 classroom school Tender—Trenton (D.N.D. Non-Urban) 2/49 Approx. $425,000. Plans deposit $25. CD 12/2.

January 5

In., Denison—TURBINE GENERATOR, etc.—Bd. Trustees Municipal Electric Light & Power Plant, Item 1, erect one 3,000 kw. turbo-generator and accessories and one 5,000 sq. ft. surface condenser, accessories; Item II, furnish, erect one 7,000 gpm induced draft cooling tower, Lutz & May, 819 Finance Bldg., Kansas City, Mo., engrs. CD 6/24/48.

Mass., Wrentham—GARAGE—B.A. 1/5—Commonwealth of Mass., Dpt. P. Wks., 100 Nashua St., Boston, block garage. Plans deposit $10. Extended date. P. H. Kitfield, ch. engr. CD 12/14.

Mass., Wellesley — HOUSING — Town of Wellesley Housing Auth., Jesse A. Drew, chn., Town Hall, garden apartments, State Aided Proj. 200-1. Plans deposit $50. CD 11/14/48.

Tenn., Nashville—SCHOOL—B.A. 1/5—Davidson Co. Bd. Educ., Nashville, Dan Mills School. Plans deposit $50. Woolwine & Harwood, 903 American Trust Bldg., archts.

Tex., Lamarque—SCHOOL—B.A. 1/5—Lamarque Independent School Dist., at office Dr. E. H. Black, supt. Schools, Lamarque,

school and 4 classroom addn. to colored schools. Plans deposit $25. Wyatt C. Hedrick, 5201 Fannin St., Houston, archt. and engr. CD 11/15.

Wash., Richland — HIGH SCHOOL — School Bd., Richland, masonry, concrete Chief Joseph Junior High School. Approx. $250,000. Mallis, Dehart & Hopkins, Lyon Bldg., Seattle, Zone 4, archts.

Wash., Seattle—SCHOOL—B.A. 1/5—School Dist. 1, 610 Dexter Ave., enlarging, altering 1 and 3 story, mill, rein.-con. Lawton School, $558,000. Plans deposit $50 for general; $25 for subs. Young & Richardson, Central Bldg., Seattle, Zone 4, archts. CD 8/27/48.

Wis., Viroqua—HOSPITAL—Vernon Memorial Hospital Assn., Courthouse, 1½ story, steel, brick, hospital, concrete fdn. $325,000. Plans deposit $20. Durrant & Berquist, Boscobel, archts. CD 8/19/48.

Man., Camp Shilo—SCHOOL—B. A. 1/5—H. C. Spence, engr. Central Mortgage & Housing Corp., 400 Kensington Bldg., Winnipeg. 20 classroom D.N.D School with auditorium at Military Station. Approx. $450,000. Plans deposit $10.

Ind., Indianapolis—SCHOOL—B.A. 1/6—Bd. School Comrs., V. M. Bailey, bus. dir., 150 N. Meridian St., 1 and 2 story, irregular shaped, brick, rein.-con. Irvington Grade School 77, $300,000. Plans deposit $25. Davis & Stout, 912 Indianapolis Pythian Bldg., mech. engrs. CD 4/6.

January 6

N. Y., East Rockaway—HIGH SCHOOL—Bd. Educ., Union Free School Dist. 19, High School Bldg., Ocean Ave., Far Rockaway, high school addn., Ocean Ave. $625,000. Plans deposit $25. Lincoln & Tumey, 1007 Broadway, Woodmere, archts.

Ont., Burlington—HIGH SCHOOL—B.A. 1/6—Shore & Moffat, archts., 79 Queen St. E., Toronto, one 103x130 ft., brick, steel, and one 46x63 ft., 3 story high school addn., alterations, for Burlington-Nelson District High School Bd., G. W. Johnson, secy. Approx. $250,000. Plans deposit $25. CD 10/30/47.

●**Ill., Charleston** — DORMITORY — B.A. 1/9 (tentative date)—Illinois State Teachers College, Charleston, two unit dormitory. $1,047,000. CD 3/8/46.

●**Ill., DeKalb**—DORMITORY—B.A. 1/9—State of Illinois, Armory Bldg., Springfield, two unit dormitory incl. 208 beds. $1,047,000. CD 3/8/46.

●**Ill., Macomb**—DORMITORY—B.A. 1/9 (tentative date)—State of Illinois, State House, Springfield, two unit dormitory. $1,047,000. CD 3/8/46.

●**Ill., Normal**—DORMITORY—B.A. 1/9 (tentative date)—Illinois State Teachers College Bd., State House, Springfield, two unit dormitory, at Illinois State Normal College. $1,047,000. Schaefer, Hooten & Wilson, Bloomington, archts. CD 4/9/45.

Tex., San Marcos—LIBRARY, etc.—B.A. 1/9—Southwest Texas State Teachers College, San Marcos, 3 story library addn. $250,000; 4 story masonry, combination cafeteria, dining hall and dormitory, concrete pier and beam fdn. $350,000; fine arts, $300,000. Plans deposit $10 each general, $5 each mechanical. Harvey P. Smith, 1204 National Bank Commerce Bldg., San Antonio, archts. M. E. Staley, Chandler Bldg., San Antonio, engr. CD 6/16.

January 10

Idaho, Pocatella — GYMNASIUM — State, state college gymnasium, $860,000. CD 11/3.

†Louisiana — POWERHOUSE, etc.—B. A. 1/10—U. S. Eng., foot Prytania St., New Orleans, Zone 9, power house, utilities, appurtenances, tender's house, office at Bayou Sorrel Lock, located on Lower Grand River in Iberville Parish, approx. 15 mi. southwest of Plaquemine. CIVENG 16-047-50-161.

†N. M., Los Alamos—COMMERCIAL UNITS—U. S. Atomic Energy Comn., Los Alamos, commercial units North Community. Approx. $300,000.

●**†Conn., West Haven** — HOSPITAL—B. A. 1/11—U. S. Eng., Bldg. 21, U. S. Naval Drydock, South Boston, Mass., 9 story GM hospital complete with chapel and assembly hall, 7 story TB hospital with chapel auditorium, station garage and repair shop, 2 duplex quarters, 1 car garage for managers office, etc., on 63 acre site between West Spring St., on south Terrace Ave., on north and extending along Campbell Ave., Serial No. Eng-10-016-50-5, for Veterans Admin., Vermont Ave. between H and I Sts. N. W., Wash. 25, D. C. $14,000,000-$16,000,000. Extended date. CD 10/11.

Calif., Merced—COURTHOUSE—B.A. 1/12—Merced Co., Courthouse, 1 story, rein.-con. courthouse, air-conditioning, marble walls in corridors, $250,000-$300,000. Plans deposit $25. Walter Wagner, Fulton-Fresno Bldg., Fresno, archt.

January 31

●**†Minn., Minneapolis**—HOSPITAL—Director, Technical Service Veterans Admin., Vermont Ave. between H & I Sts. Wash., 25, D. C., 450-bed GM veterans administration hospital, $8,000,000 to $12,000,000. Extended date. CD 10/12.

LOW BIDDERS

Calif., San Andreas — HOSPITAL — Mark Twain Hospital Dist., Courthouse, Dec. 14, 1 story, frame, redwood exterior rein.-con., 86-bed hospital, from Moore & Roberts, 693 Mission St., San Francisco, **$608,250.** CD 11/22.

Ind., Bedford—SCHOOL—Bd. School Trustees, Bedford, Dec. 15, school, from Three A's Builders, 220 N.W. 8 St., Evansville, **$305,180.** CD 11/30.

Minn., Owatonna — SCHOOL — Bd. Educ., Vera Hinderman, clk., Dec. 8, general contract, 3 story, 134x242 ft. school, from Hammel Bros. & Anderson, Owatonna, **$392,719.** CD 11/16.

Minn., Wayzata—SCHOOL—Bd. Educ., Consolidated School Dist. 144, C. H. Meyer, clk., Dec. 13, general contract 3 story school, from D. L. Witcher, 542 Builders Exchange Bldg., Minneapolis, **$728,800.** CD 11/16.

●**†N. J., Trenton** — LABORATORY — Bureau Yards & Docks Annex, Navy Dpt., Arlington, Va., Dec. 15, Naval Aeronautical Turbine Laboratory, from Mehring & Hanson Co., Arlington, Va., **$1,283,443.** CD 11/30.

N. C., Raleigh—HOSPITAL—State Hospital Bd. Control, Roy Purser, gen. bus. mgr., Raleigh, Dec. 15, general contract building for disturbed men at State Hospital, from J. A. Jones Constr. Co., 209 W. 4 St., Charlotte, **$332,700.** CD 11/21.

Okla., Perry—HOSPITAL—City, Dec. 7, 30 bed hospital, from John B. Martin Co., 207 Commerce Exchange Bldg., Oklahoma City, **$239,164.** CD 11/21.

●**Pa., Phila.** — YOUTH STUDY CENTER — Comrs. Phila. Co., City Hall, rejected bids Dec. 14, youth study center, L. B. **$1,693,000.** CD 11/30.

S. C., Greenville—STEAM PLANT, etc.—Greenville General Hospital, Greenville, returned unopened bids to have been opened Dec. 13, steam plant and laundry. CD 12/7.

†Tennessee—HOUSING, etc.—U. S. Eng., U. S. Courthouse, P. O. Box 1070, Nashville, rejected bids Nov. 8, housing and comfort station, Dale Hollow Dam, Clay Co. CIVENG-40-058-50-13. CD 10/17.

Tenn., Jefferson City—SCHOOL—Jefferson Co., Jefferson City, Dec. 15, New Market School, from Johnson & Willard, 422 W. Front Ave., Knoxville, **$438,000.** CD 11/22.

†Tenn., Oak Ridge—LABORATORY—U. S. Atomic Energy Comn., P. O. Box 3, Dec. 15, construct Instrument Laboratory Bldg. 3 at Oak Ridge National Laboratory, X-10 area, Roane Co., Inv. No. 401-50-2A, from Henry A. Ivey, Inc., 569 Plum St. N.W., Atlanta, Ga., **$437,715.** Austin Co., 16112 Euclid Ave., Cleveland, O., engr. CD 10/31.

Tex., Gatesville — HIGH SCHOOL — Independent School Dist., c/o supt., Gatesville, Dec. 15, general contract high school and symnasium, from Warner Constr. Co., San Angelo, **$324,700.** Est. $450,000. CD 12/2.

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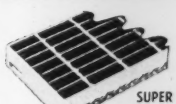

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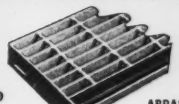

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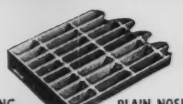

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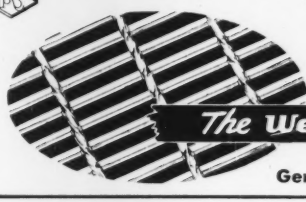

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General Sales Office: 274 Madison Avenue, New York City

Wis., Wisconsin Rapids — SCHOOL — Bd. Educ., Dec. 12, general contract, 2 story, part bsmnt., 60x480 ft., rein.-con., brick, stone Howe Grade School, from Edw. H. Meyer Constr. Co., P. O. Box 705, Highway 41, Neenah. **$267,400.** CD 11/28.

CONTRACTS AWARDED

Ga., Atlanta—HIGH SCHOOL—Fulton Co. Bd. Educ., Courthouse, Northside Drive High School, c/o Archer Bros., Inc., 281 North Ave. N. E., **$387,900.** Bids 12/15. CD 11/28.

Ia., Cedar Falls — TURBO-GENERATOR UNIT, etc.—State Bd. Educ., 1007 Des Moines St., Des Moines, turbo-generator unit, auxiliaries and work pertaining to installing in power plant, to Elliott Co., Jeannette, Pa., **$76,350.** Bids 11/15. Brown Eng. Co., 322 K P Bldg., Des Moines, engr.

La., Thibodaux — SCHOOLS — Lafourche Parish School Bd., Thibodaux, LaRose Cut-Off High School, to A. & O. Bldgs., 3297½ Metairie Rd., New Orleans, **$265,980.** Bids 10/5. Wm. R. Burk, 414 Pan-American Bldg., New Orleans, engr. CD 9/2.

N. J., Salem—HOSPITAL—Salem County Memorial Hospital, 87 Market St., hospital, to Costanza Contg. Co., 622 Penn St., Camden, **$602,685.** Bids 11/30. CD 12/8, under LB.

Okla., Blackwell—TURBINE GENERATOR UNITS—City, 2 steam turbine generator units for Blackwell power plant, to Westinghouse Electric Co., Union Bank Bldg., Pittsburgh, Pa., **$297,900.** Est. $325,000. Bids 12/12. Black & Veatch, 4706 Broadway, Kansas City, Mo. engrs.

Ore., Eugene — GENERATORS — State Bd. Higher Educ., University of Oregon, Eugene, turbine generators for steam heating plant at University of Oregon to Worthington Pump & Mchy. Corp., Concord Bldg., Portland, **$138,998.** Bids 12/12. CD 12/1.

COMMERCIAL BUILDINGS

BIDS ASKED

January 4

Ill., Alton — SCHOOL — Alton Community Consolidated School Dist. 151, Madison Co., c/o Bd. Educ., H. E. Meyer, secy., Haskell House, 1211 Henry St., brick, concrete Junior High School, State St. $300,000. Albert M. Goedde, 621 First National Bank Bldg., East St. Louis, archt. CD 7/1/48.

Wash., Bellevue — HOUSES — B. A. 1/5—Veterans Mutual Bldg., Assn., c/o Chiarelli & Kirk, archts., 2 and Cheery Bldg., Seattle, Zone 4, 54 frame houses in Norwood Village, $250,000. Extended date. CD 12/1.

January 9

Mo., St. Louis—HOSPITAL—Faith Hospital Assoc., Dr. A. J. Signorelli, dir., 2800 N. Taylor Ave., 3 story, modernistic hospital, Solar-type constr. on fronting 165x543 ft. in 3000 Block of North Kings Highway Blvd., and boiler house. J. D. Murphy & A. G. Corrubia, 4746 McPherson Ave., Zone 8, assoc. archts. Neal J. Campbell, 911 Locust St., engr. CD 11/30/44.

After January 9

N. J., Burlington—INFIRMARY—Masonic Home & Charity Foundation of New Jersey, Jacksonville Rd., infirmary. $275,000. Hettell & Albert, 501 Cooper St., Camden, archts. CD 9/6.

Neb., Omaha—ACADEMY WINGS—B. A. 1/10—Notre Dame Academy, 3505 State St., 2 new wings and boiler house. Carl P. Stangel, 2923 N. 48 St., archt.

Tex., Brownsville — HOSPITAL — Mercy Hospital, Brownsville, 3 story 42-bed structural steel frame hospital, concrete pier and beam fdn. $603,000. Page Southerland & Page, 602 West Ave., Austin, archts. Wilson & Cottingham, Littlefield Bldg., Austin, structural engrs. Landauer & Guerrero, 4801 Lemmon St., Dallas, mechanical engrs. CD 11/16, under LB.

January 11

Ark., Russellville—DORMITORY—Arkansas Polytechnic College, Russellville, 1 story, 50-bed dormitory Wittenberg, Delony & Davidson, Pyramid Bldg., Little Rock, archts. CD 5/7/47.

La., New Orleans—Y. M. C. A.—B. A. About 1/15—Y. M. C. A. c/o Jones & Roessle, archts., Maison Blanche Bldg., Y. M. C. A. bldg., $500,000. CD 12/7.

La., Ruston — GYMNASIUM — B. A. About 1/15—Louisiana Polytechnic Institute, Ruston, gymnasium, $750,000. Smith & Padgett, Monroe, archts. CD 12/13.

Ala., Marion—HALL—B. A. About 1/15—Judson College, Marion, Jewett Hall. Approx. $250,000. Warren, Knight & Davis, Protective Life Bldg., Birmingham, archts.

Ala., Birmingham—CLUBHOUSE—B. A. 1/18—The Club, c/o Warren, Knight & Davis, archts. protective Life Bldg., clubhouse. $300,000. CD 6/27.

Ga., Atlanta — CLUBHOUSE — B. A. 1/18—Atlanta Lodge 78, BPOE 736 Peachtree St. N. E., Elk's Clubhouse, $300,000. Wm. J. J. archts., Protective Life Bldg., clubhouse. $300,000. CD 6/27.

Ga., Cedartown—CHURCH, etc.—B. A. 1/24—First Baptist Church c/o Bothwell & Nash, archts., 206 Roswell St., Marietta, church and sunday school. $350,000. Plans deposit $50. CD 7/5.

Tex., San Antonio — GYMNASIUM — B. A. 1/24—San Fernando Parish, 115 Military Plaza, gymnasium. $250,000. Leo M. J. Dielmann, 300 E. Market St., archt. CD 8/4.

Tex., San Antonio — SCHOOL — B. A. 1/24—St. Annes Church, Fredericksburg Rd. and French Pl., 8 story school. $250,000. Julian & White, Transit Tower, archts., Frank Drought, 117 W. Pecan St., and M. E. Staley, 31 Chandler Bldg., engrs. -CD 12/2.

Tex., Brownsville—HOSPITAL—B. A. 1/31—Mercy Hospital, Brownsville, 42 bed hospital unit. $603,000. Extended date. Page, Southerland & Page, 602 West Ave., Austin, archts. CD 12/7.

February

●†O., Cincinnati — HOSPITAL — Veterans Admin., Vermont Ave. between H and I Sts. N.W. Wash. 25, D. C., 500-bed hospital, on 19 acre site, near U. C. College of Medicine, **$7,500,000.** CD 10/14.

About February 1

Pa., New Castle—HOSPITAL—Jameson Memorial Hospital, Roger W. Rowland, chn. bd., New Castle, hospital addn. $900,000. CD 8/9/46.

February 1

Ont., Welland — COMMUNITY CENTER — Lapointe & Tremblay, archts., 2534 Cote des Neiges Rd., Montreal, Que., 4 story, 50x147 ft., structural steel, concrete, stucco wall community center, swimming pool, theatre, gymnasium, assembly room, etc., for Sacred Heart Parish, Rev. A. Buisson, 73 Empire St., Approx. $600,000. CD 1/28.

●D. C., Wash.—HOSPITAL—B. A. About 2/7—Children's Hospital, 13 and V Sts. N. W., 5 story, rein.-con. hospital behind old structure, and remodeling present building, W St. at 13 St. N. W. $2,000,000. York & Sawyer, 1303 18 St. N. W., archts.

W. Va., Buckhannon — DORMITORY, etc. — B. A. 2/21—West Virginia Wesleyan College, mens dormitory, $400,000, library $350,000. Poundstone, Ayers & Godwin, Palmer Bldg., Atlanta, Ga., archts. CD 1/26.

Tex., Houston—OFFICE—Bids Asked—Houston Title & Guaranty Co., Shell Bldg., 4 story, bsmnt., 52x104 ft., concrete, steel Vermont limestone, brick office, concrete pier and beam fdn., air-conditioning, $500,000. Northrup & Northrup, 3940 Main St., engrs.

SOON LETS CONTRACT

Fla., Miami Beach—ATHLETIC CENTER—Community Holding Corp., c/o B. Robert Swartburg, archt., 426 24 St., Miami Beach, soon lets contract athletic center. (**Correction**—name of owner). CD 12/9.

Pa., Phila.—CONVENT—St. Francis of Assisi Roman Catholic Church, Marshall and Buttonwood Sts., soon lets contract convent. $250,000. Peter F. Getz, 32 Bryan St., Havertown, archt.

Pa., Harrisburg—STORE—G. C. Murphy Co., 533 5 Ave., McKeesport, soon lets contract store. $500,000. R. V. Harkless, c/o owner, ch. archt. CD 12/16.

Tex., Dallas—STORES—Sam Lobello & L. J. Hexter, 1313 Main St., soon lets contract, 47,100 sq. ft. four-unit, steel, brick, hollow tile stores, concrete slab fdn. $275,000. No bid opening 10/18. De Witt & Swank, 2025 Cedar Springs Rd., archts. CD 9/22.

LOW BIDDERS

Ga., Sea Island — CLUBHOUSE — Sea Island Co., c/o low bidder Dec. 15, beach clubhouse, from Hayes Constr. Co., Brunswick. Approx. **$300,000.** CD 11/15.

O., Cleveland—CHURCH, SCHOOL—St. Leo Catholic Parish, 4865 Broadview Rd., rejected bids Nov. 14, church and elementary school. **$350,000.** CD 11/10.

Tex., San Antonio — CLASSROOM, etc. — Trinity University, 3115 W. Asby St., Dec. 14, 44,000 sq. ft., 60x383 ft., concrete, steel, combination classroom-administration, pier and beam fdn., from James Stewart & Co., Magnolia Bldg., Dallas. **$116,000.** Est. $350,000. CD 11/23.

CONTRACTS AWARDED

Ala., Fairfield — OFFICE — Flintridge Corp., c/o contractor, 4 story, 210x580 ft., 300,000 sq. ft. office, to Daniel Constr. Co., 822 7 Ave. S., Birmingham. Approx. **$500,000.** Tennessee, Coal, Iron & R. R. Co., Birmingham-Southern R. R. and Union Supply Co., lessee. Holabird Root & Burgee, 180 N. Wabash St., Chicago, Ill., and Jack Smith, Frank Nelson Bldg., Birmingham, archts.

Ariz., Tucson—CHURCH, etc.—University Catalina Methodist Church, Tucson, church and sunday school, to Murray J. Shiff, Tucson, Approx. **$250,000.** Thomas & Wagoner, 117 S. 17 St., Phila., Pa., archts. Charles H. Wolf, 112 S. 16 St., Phila., Pa., engr. CD 2/11.

Ark., North Little Rock—HOUSING—Wallace E. Johnson, Inc., 875 Rayner St., Memphis, Tenn., 126 rental units (housing) for negroes day labor, **$500,000.** W. C. Lester, Dermon Bldg., Memphis, Tenn., archt.

Calif., Los Angeles — DWELLINGS — Geo. Steinkamp, 5018 W. Valleyridge St., 36 frame, stucco dwellings, Ruthelen Ave. and St. Andrews Pl. Owner builds. **$302,400.** Southwest Drafting Service, 2724 W. Florence Ave., archts.

Del., Seaford — APARTMENTS — Westview Apartments, Selbyville, 4 apartments, Locust St., to Hastings & Eskridge, Seaford, **$250,000.** Aaron Colish, 117 S. 17 St., Phila., Pa., archt.

Del., Wilmington—RESIDENTIAL DEVELOPMENT—W. Percival Johnson & Son, Inc., 1707 Concord Ave., residential development, Murphy Rd., separate contracts, **$300,000.**

●Del., Wilmington—APARTMENT DEVELOPMENT—Woodlawn Apartments c/o contractor, apartment development, Faulkland Rd. and Center St., to Anthony P. Miller, Inc., 3333 Arctic Ave., Atlantic City, **$1,250,000.** W. R. Morton Keast, 1201 Chestnut St., Phila., Pa., archt.

Fla., Miami—HOMES—A-F-Three, Inc., c/o contractor, 41 homes, to Albert Constr. Co., 3140 N. Miami Ave. **$250,000.**

Fla., Miami—HOMES—The Lanti Corp., c/o contractor, 102 homes in Hunche Park Area, to Gaines Constr. Co., 3211 N. W. 27 Ave. Approx. **$525,000.**

Ind., Howe—ACADEMIC—Howe Military Academy, Howe, academic bldg., to C & C Constr. Co., 2001 E. Berry St., Fort Wayne. **$275,000.** Awarded 12/14. A. M. Strauss, 415 Cal-Wayne Bldg., Fort Wayne, archt. CD 1/22/45.

La., New Orleans — HOUSES — Palmetto Homes, c/o contractor, 60 homes, to Globe Constr. Co., 8139 Orleans St., Approx. **$500,000.**

●Mass., Norwood — HOUSING — Mastercraft Homes, Inc., 132 Thorndike St., Brookline, 250 frame houses, Ellis and Neponset Aves., Margaret and Washington Sts., to Peter Caporale, 132 Thorndike St., Brookline, **$2,000,000.** CD 9/16.

Minn., Robbinsdale—THEATRE, etc.—Volk Bros., 3736 23 Ave., S., Minneapolis, general contract theatre and shopping center, 36 Ave. N. between France Ave. and Broadway, to Car-Dell Co., 53 S. 13 St., Minneapolis. Approx. **$300,000.** CD 12/27/48.

Miss., Oxford—HOUSES—Wallace E. Johnson, Inc., 875 Raynor St., Memphis, Tenn., 50 houses. Owner builds. Approx. **$300,000.**

N. J., Clayton—RESIDENTIAL DEVELOPMENT—Glick & Roston, 230 Delsea Dr., residential development, Delsea Dr., to Ridge Estates Development Co., Woodbury. **$250,000.**

N. J., Elizabeth—CHURCH—Westminster Presbyterian Church, 234 Bradford Rd., church, to Andrew Christensen & Son, Inc., 225 W. Grand St. Approx. **$250,000.** CD 4/13.

N. J., Glassboro—RESIDENTIAL DEVELOPMENT—Glick & Roston, 230 Delsea Dr., Clayton, residential development, Chestnut Ridge, to Ridge Estates Development Co., Woodbury. **$350,000.**

N. J., Lakewood—RESIDENTIAL DEVELOPMENT—Ferber Enterprises Inc., Lakewood, residential development, Madison Ave., to Olin D. White, Asbury Park, and David Marner, 305 Bond St., Asbury Park, archt.

N. Y., Woodmere — HOUSES — Edward J. Waters, c/o Alwin Cassens, Jr., archt., 116-55 Queens Blvd., Forest Hills, 50 one family houses, Peninsula Blvd. west of Woodmere Blvd. Owner builds. **$350,000.**

●O., Dayton—HOUSING—W. A. Simms, 24 N. Jefferson St., 120-house development to be known as Eastview, on 25 acre tract east of Shedbourne Ave., south of Kemp Rd. Owner builds. **$1,100,000.**

O., Maple Heights—HOMES—Marvin Helf, 2100 Green Rd., Cleveland, forty-nine, 1½ story, bsmnt. homes, Beverly Dr., separate contracts. Approx. **$360,000.**

O., Parma—HOMES—Bailin Homes, Inc., 3892 E. Anale Ave., South Euclid, twenty-five 1½ story, bsmnt., brick homes, separate contracts. **$272,000.**

Pa., Broomall — RESIDENCES — Mar-Ann Holding Co., Lansdowne Center Bldg., Lansdowne, residential development, Sproul Rd., separate contracts. **$250,000.**

Pa., Bryn Mawr—RESIDENCES—Stephen Schifter, 6601 Garden Court, Upper Darby, residential development, Rodney Circle, etc., separate contracts. **$250,000.**

Pa., Darby—RESIDENCES—Duffy & Patton, 69 and Walnut Sts., Upper Darby, residential development, Marks and Summit Sts., etc., separate contracts. **$250,000.** Erling H. Wenge, McClatchy Bldg., Upper Darby, archt.

Pa., Phila.—RESIDENCES—Comar Constr. Co., 7939 Franklin St., residential development, Asheville St., separate contracts. **$390,000.** G. Harold Murphy, 1621 Sellers St., archt.

Pa., Phila. — FINANCE—Finance Building Corp., 1428 S. Penn Square, finance bldg. alteration, to Turner Constr. Co., 1500 Chestnut St., **$500,000.** I. S. Towsley, c/o owner, engr.

Pa., Phila — RESIDENCES — Mariani & Himelfarb, 5424 Euclid Ave., residential development, Disston St., separate contracts. **$787,000.**

Pa., Phila.—RESIDENCES—Martin Wolf, 5123 N. 10 St., residential development, Vernon Rd. and Thuron St., separate contracts. **$250,000.**

Pa., Pittsburgh—APARTMENT—Fieldbrook Apartments, Inc., c/o general contractor, 6 story, 92x95 ft. brick, concrete, steel 50 suite apartment, Mount Lebanon Twp., to Rex Mansmann, 28 Mission Dr. Approx. **$500,000.** Phillip Friedman, 121 S. Negley St., Pittsburgh, archt.

Tex., Austin—HOTEL—L. L. McCandless & W. R. Hooper, 408 Comal St., 40 room 2 story hotel and 100 individual tourist court units. Owner builds. Approx. **$390,000.** CD 12/15.

Tex., Dallas — DORMITORY — Methodist Hospital, 301 W. College St., general contract,

nurses dormitory, to Inwood Constr. Co., 5151 N. W. Hy., **$254,151.** Bids 11/18. CD 12/13, under Lib.

Tex., Fort Worth—COMMUNITY CENTER—Beverly Hills Development Co., 209 W. 8 St., Unit 4, community center, own forces. **$275,000.** CD 5/9.

Tex., Houston—HOUSING—Archer Development Co., Electric Bldg., housing off Wirt Rd., near here. Owner builds. **$350,000.** CD 12/13.

Tex., Houston—HOUSING—R. E. Baldwin, 1015 W. Gray St., housing of Wynona St., etc. Owner builds. Approx. **$250,000.** CD 12/1.

Tex., Houston—HOUSING—J. E. Hoover, 9149 Elizabeth Rd., housing, own forces. Approx. **$335,000.** CD 11/28.

Tex., Houston—HOUSING—H. L. Lockhart, 802 La Monte Lane, housing, own forces. Approx. **$250,000.** CD 12/1.

Tex., Houston—DWELLINGS—Sikes Co., 510 Silcox St., 32 dwellings, Mariposa and Rochdale Sts. Approx. **$350,000;** 25 dwellings, portion of Westbridge St. Approx. **$275,060,** own forces. CD 12/15.

Tex., Houston—DWELLINGS—L. R. Webb Constr. Co., 8250 Glenbrook Dr., 14 dwellings between San Felipe Rd. and Memorial Dr. Owner builds. **$350,000.** CD 12/2.

Tex., Odessa—DWELLINGS—Roy E. David, Odessa, 40 dwellings, own forces. Approx. **$250,000.**

Tex., San Antonio—HOUSING—Quali-Cul Co., c/o L. R. Pletz, 1426 N. Brazos St., housing, concrete pier fdn. Owner builds. **$275,000.**

Tex., San Antonio—HOUSING—Wonder Homes, Inc., 505 Majestic Bldg., Housing Project 2, own forces. **$250,000.** CD 12/6.

Tex., Sweetwater—APARTMENT—Rod Alston, c/o Alston Lumber Co., Sweetwater, apartment, force account. Approx. **$250,000.** CD 12/13.

Tex., Tyler—DWELLINGS—Gunn & Valwin, 1325 San Antonio St., 20 dwellings, own forces. Approx. **$265,000.** CD 12/2.

INDUSTRIAL BUILDINGS

BIDS ASKED

Minn., St. Paul—WAREHOUSE, etc.—B.A. 1/3 — Hancock-Nelson Mercantile Co., 2117 Charles Ave., superstructure 1 story, 260x347 ft. warehouse, 1 story, 98x120 ft. brick, garage, 2299 Territorial Rd. $410,000. CD 12/8

Minn., Elk River—POWER PLANT FITTINGS—B.A. 1/5—Rural Co-operative Power Assn., Maple Lake, furnishing, erecting piping, valves, fittings and miscellaneous related equipment in power plant (under constr.). CD 12/15.

January 10

Iowa—POWER PLANT IMPRVS.—Southwestern Federated Power Co-operative, Creston, Sect. 11, furnishing, installing pipe covering and equipment, insulation, power plant. Stanley Eng. Co., Hershey Bldg., Muscatine, engr. CD 7/9/48.

Ont., Toronto—BUILDING—B.A. 1/10—Stone & Webster Eng. Corp., engrs., 299 Eastern Ave., Building 11 alterations, for Lever Bros. Ltd., 299 Eastern Ave. Approx. $100,000. CD 2/21.

Ga., Millen—WAREHOUSE, etc.—B.A. 1/13—The Planters Electric Membership Corp., Millen, warehouse and office. Plans deposit $25. Southern Eng. Co., 699 Spring St. N.W., Atlanta, archts.

Ind., Madison—PLANT—B.A. on or About 1/13—Longini Shoe Co., East St., 1 story, 160x340 ft. plant, North and East Sts. $100,000.

Minn., Maple Lake—GARAGE, etc.—B.A. 1/22 (tentative date)—Wright-Hennepin Electric Co-operative, Maple Lake, 1 story, R. E. A. office & garage and office. $100,000. Long & Thorshov, 400 Metropolitan Life Bldg., Minneapolis, archts. R. D. Thomas & Assoc., 400 Metropolitan Life Bldg., engrs. CD 2/3.

Ind., Lafayette—PLANT—Bids Asked—Borden Co., 350 Madison Ave., New York, N. Y., 1 story, bsmnt., brick, concrete milk plant, $100,000. Cowel, Robinson & Martin, 24 W. 43 St., New York, N. Y., engr.

Pa., Phila.—INDUSTRIAL—Bids Asked—Renee Ruch, c/o Max N. Carol, 1524 Chestnut St., industrial bldg. $65,000. Norman N. Rice, 2220 Chestnut St., archt.

R. I., Providence — WAREHOUSE — Bids Asked—What Cheer Bottling Co., 409 Charles St., 1 story, 75x135 ft., brick, concrete warehouse, Silver Spring St. $68,000. Arthur Campopiano, 509 Westminster St., archt.

Tex., Dallas—WAREHOUSE—Bids Asked—Damon Wells, 2107 McKinney St., Houston, 100,000 sq. ft. warehouse. $700,000. CD 12/12.

SOON LETS CONTRACT

Ark., Berryville—WAREHOUSE, etc.—Carroll Electric Co-operative, Berryville, soon lets contract warehouse and office. T. Ewing Sherlton, First National Bank Bldg., Fayetteville, archt. CD 4/14.

Del., Wilmington—SALES and SERVICE—G. Morris Whiteside 2nd, archt., Du Pont Bldg., Wilmington, soon lets contract auto sales & service bldg., for Porter Motor Co., 38 and Market Sts., Approx. $68,000.

N. J., Camden—WAREHOUSE—A. M. Stollwerck Inc., 1651 Haddon Ave., Camden, soon lets contract warehouse. Approx. $68,000. George L. J. Neutze, 15 and Erie Sts., Camden, archt.

N. J. Trenton — INDUSTRIAL — Trenton Pipe Nipple Co., 19 Cone St., soon lets contract industrial bldg. Approx. $68,000. William W. Slack Son, 1401 W. State St., archts.

LOW BIDDERS

Ala., Tuscaloosa — WAREHOUSE — Sears, Roebuck & Co., Ponce de Leon Ave., Atlanta, Ga., Dec. 9, warehouse, from M. B. Kahn Constr. Co., 1113 Blossom St., Columbia, S. C. CD 11/30.

Idaho, Boise—GARAGE, etc.—Motor Center, Inc., 822 Front St., Dec. 6, 2 story, concrete garage and storage bldg., from Kloepfner & Gramkow, 416 S. 6 St., **$76,000.** H. Hulbe, 114 S. 10 St., archt.

Pa., Phila.—REFRIGERATION BLDG., etc.—M. Lapin & Sons, 324 Callowhill St., rejected bids, refrigeration bldgs. and smoke house addns. **$70,000.** CD 11/23.

CONTRACTS AWARDED

Del., Wilmington—WAREHOUSE—Greenhill Dairies, Inc., 2 St. and Greenhill Ave., warehouse to Ernest Di Sabatino & Sons, Inc., 2601 W. 4 St., Approx. **$68,000.**

Ga., Columbus — PLANT — Ledger-Enquirer c/o contractor, newspaper printing plant addn., alterations, to Williams Constr. Co., 1032 13 St., Approx. **$75,000.** James J. W. Biggers & Assoc., 205 Flowers Bldg., archts. CD 1/3, under LB.

Ga., Rossville — PLANT — Peerless Woolen Mills, Rossville finishing plant addn. and weaver room exten., to Mark K. Wilson Co., Chamberlain Bldg., Chattanooga, Tenn., Approx. **$200,000.** Bids 12/14. CD 11/28.

Ga., Whitesburg—POWER PLANT—Georgia Power Co., 75 Marietta St. N.W., Atlanta, power plant, to Nonnemaker-Clayton Co., 70 Houston St. N.E., Atlanta, Approx. **$75,000.** Bids 11/21. CD 11/11.

Ind., Kokomo—PLANT—Logansport Coca Cola Co., Logansport, plant at north edge of here on U. S. Rte. 35, to W. P. Jungclaus Co., 825 Massachusetts St., Indianapolis, **$100,000.**

O., Cleveland — WAREHOUSE — Cleveland Stevedore Co., foot W. 9 St., terminal warehouse and side track, to Hunkin-Conkey Constr. Co., 1740 E. 12 St., **$200,000.** Awarded 12/8. CD 7/21.

O., Youngstown — STEAM PLANT — Hotel Pick-Ohio, Del Courtney, mgr., Boardman and Champion Sts., modernize, enlarge plant, installing 2 high-pressure steam boilers in 3 story addn., to Adolph Johnson & Son Co., 661 Wick Ave., Approx. **$70,000.**

Pa., Phila. — MANUFACTURING — Charles A. & Joseph C. Hoffman, Umbria St. and Paoli Ave., mfg. bldg., to D. L. Sloan, 811 N. Ringgold St., **$70,000.**

Pa., Phila.—FACTORY, etc.—Millbourne Assoc., 6419 Market St., Upper Darby, soon lets contract factory and office bldg., Chew St. and Nedro Ave., $235,000. James G. Ludwig, 6403 Market St., Upper Darby, archt. CD 12/18.

S. C., Bennettsville—PLANT—Marlboro Developing Corp., Bennettsville, mfg. plant, to Henry J. Munnerlyn, Bennettsville, Approx. **$100,000.** CD 11/9, under Lib.

Tex., Beaumont—SERVICE, etc.—The Cook Co., 820 Fannin St., service and warehouse, to Herman Weber, San Jacinto Bldg., **$71,000.** Matkin, Fitch & Assoc., 6731 Harrisburg Blvd., Houston, archts.

Tex., Dallas — REFINERY PLANT — The Texas Co., 2310 S. Lamar St., converting refinery plant into products pipeline terminal, own forces. Approx. **$200,000.** CD 12/12.

Tex., Fort Worth—POWER PLANT—Community Public Service Co., Electric Bldg. (2nd unit), electric power plant expans., imprvs., force account. **$175,000.** CD 12/10/48.

Tex., Petronila—PLANT—Petronila Farmers Co-op Gin Co., Petronila, via Corpus Christi, addnl. cotton gin plant, own forces. Approx. **$85,000.**

Tex., Seymour — SERVICE GARAGE — Brown Chevrolet Co., Seymour, repair, service garage, own forces. Approx. **$70,000.**

Tex., Seymour — WAREHOUSE — F. F. Buhner Co., Seymour, warehouse, to J. J. Letiner & Son, Crowell, Approx. **$75,000.**

Tex., Seymour—STORAGE—Farmers' Supply Co., Inc., Seymour, feed and grain warehouse storage, to J. L. Lowther, Bangs, Approx. **$75,000.**

Wis., Milwaukee—FACTORY—Weyenberg Shoe Mfg. Co., 234 E. Reservoir Ave., Zone 12, 2 story, 67x92 ft., steel, concrete blocks factory addn., concrete fdns. and floors, to Meredith Bros., 121 E. Washington St., Zone 4. R. W. Dwyer, 3316 W. Wisconsin Ave., Zone 8, archt. Bids 11/4.

UNCLASSIFIED

BIDS ASKED

Missouri—RURAL DISTRIBUTION LINES—B.A. 1/4—Laclede Electric Co-operative, Lebanon, 348.3 mi. rural distr. lines and 67.5 mi. conversion of lines in Camden, Pulaski, Dallas, Laclede, Wright and Webster Counties. $400,000. CD 6/28.

†**Wyoming**—TRANSMISSION LINE—Bureau Reclamation, Dpt. Interior, Cody, Boysen-Thermopolis 115-kilovolt transmission line, Transmission Division, Missouri River Basin Proj., near Thermopolis, Spec. 2856. L. N. McClellan, Bldg. 1-A, Denver Federal Center, Denver, Colo., ch. engr.

B. C., Port Renfrew—WHARF—B. A. 1/4—J. M. Somerville, secy. Dpt. P. Wks., Hunter Bldg., Ottawa, Ont., wharf reconstr. Approx. $25,000. Plans deposit $20. R. Blais, c/o owner, engr.

Que., Baie St. Catherine—WHARF—B. A. 1/4—J. M. Somerville, secy. Dpt., P. Wks., Hunter Bldg., Ottawa, Ont., wharf reconstr. Approx. $150,000. Plans deposit $50. R. Blais, c/o owner, engr.

†**Idaho**—ELECTRICAL EQUIPMENT, etc.—B.A. 1/5—Bureau Reclamation, Dpt. Interior, Anderson Dam, installing electrical and mechanical equip. for Anderson Ranch Power Plant, switchyard and outlet works, Boise Proj., Spec. 2852. L. N. McClellan, Bldg. 1-A, Denver Federal Center, Denver, Colo., ch. engr.

†**Wyoming** — TRANSFORMERS — Bureau Reclamation, Dpt. Interior, Bldg. 1-A, Denver Federal Center, Denver, Colo., two 115,000 volt and four 34,500 volt current transformers and five 34,500 volt potential transformers, Missouri River Basin Proj., Boysen Div., Boysen Unit, Spec. 2846. L. N. McClellan, ch. engr.

†**Oklahoma**—METERING EQUIPMENT—B.A. 1/11—Southwestern Power Admin., P. O. Drawer, 1614, Tulsa, Zone 1, metering equip. for large voltage ojeration, 138 to 161 kv, at fifteen different locations on lines of the Southwestern Power Admin. $175,000. Plans deposit $15.

†**California**—TRANSMISSION LINE—B. A. 1/12—Bureau Reclamation Box 2511, Sacramento, 230 kilovolt transmission line, Shasta-Tracy 1 and 2, Cottonwood-Artois Section, Central Valley Proj., Spec. 2848.

New Mexico—RURAL DISTRIBUTION LINES—B.A. 1/12—Continental Divide Electric Co-operative, Inc., Grants, 193 mi. 24 kv. rural distr. lines, McKinley Co. $173,000. Plans deposit $10. Southwest Engineers, 510 Transit Tower, San Antonio, Tex., engrs. CD 9/16.

†**Wyoming**—STRUCTURAL STEEL—B. A. 1/12—Bureau Reclamation, Dpt. Interior, Casper, furnishing, del. structural steel for Pine Bluffs Town Substation, Transmission Division, Missouri River Basin Proj., Spec. YII-51.

Ala., Tuscaloosa—STADIUM—B.A. 1/17—University of Alabama, Tuscaloosa, 12,000 seat, concrete, steel Denny Field Stadium addn. Plans deposit $25. Miller, Martin & Lewis, Guarantee Bldg., Birmingham, archts. CD 6/18/47.

†**Arizona-California-Nevada**—GOVERNOR—B. A. 1/17—Bureau Reclamation, Dpt. Interior, Bldg. 1-A, Denver Federal Center, Denver, Colo., one governor with pumping equip. for regulating the speed of 70,000 hp. hydraulic turbine for Unit A9 in Hoover Power Plant, Boulder Canyon Proj., Spec. 2864. L. N. McClellan, Bldg. 1-A, Denver Federal Center, Denver Colo., ch. engr.

†**Arkansas**—LIGHTING DISTRIBUTING CENTER—U. S. Eng., 300 Broadway, furnishing nine lighting distributing center, complete with panel boards, four panel enclosing cabinets, lighting transformer, f.o.b. railroad cars, Cotter, Bull Shoals Dam. Inv. No. 03-050-50-47.

†**Delaware**—STEEL SURVEY TOWER—B. A. 1/17—U. S. Eng., 121 N. Broad St., Phila. 1, Pa., steel survey tower in Delaware Bay, about 3¼ mi. southwest 21 degrees from Fourteen Foot Bank Light and adjacent to sunken steamship Mosswk, at approx. 3 mi. west of main ship channel in Delaware Bay, about 58 mi. downstream from Wilmington and about 15 mi. nort-northwest from Cape Henlopen.

Nebraska—OUTDOOR STEEL SUBSTATIONS, etc.—B. A. 1/20—Consumers Public Power Dist., Columbus, furn. outdoor steel substations, Schedule 1, Item 1, 34.5/12 kv. switch structure for Humboldt; Item 2, 115 kv switch structure for Humboldt; Item 3, 115/49/34.5 kv transformer structure for Humboldt; Schedule 2, Item 1, 34.5 kv structure for Beatrice, Item 2, 115 kv switch structure for Beatrice 115/69/34.5 kv transformer structure for Beatrice; Part II, Schedule 1, Item 1, transformer control cubicle for Humboldt, Item 2, cubicle for Humboldt 34.5 kv lines, Schedule 2, Item 1, cubicles for Kramer and Humboldt 115 kv lines, Item 2, cubicle for transformer control at Beatrice, Item 3, cubicle for Beatrice 34.5 kv lines Part III, Schedule 1, Item 1, two 34.5 kv outdoor oil circuit breakers for Humboldt, Item 2, one 15 kv 600 amp. outdoor reclosing circuit breaker for Humboldt, Schedule 2, Item 1, two 34.5-kv oil circuit breakers for Beatrice, Item 2, two 115 kv oil circuit breakers for Beatrice; Part IV, Schedule 1, Item 1, nine 34.5 kv, three 69 kv and three 115 kv single pole underground neutral lightning arresters for Humboldt, Item 2, three 115 kv wound type current transformers for Humboldt, Item 3, nine 34.5 kv wound type current transformers for Humboldt, Item 4, four 34.5 kv two bushing type potential transformers for Humboldt, Schedule 2, Item 1, nine 34.5 kv and nine 115 kv single pole for ungrounded neutral lightning arresters for Beatrice, Item 2, six 34.5 kv wound type current transformers for Beatrice, Item 3, four 34.5 kv two bushing type potential transformers for Beatrice. CD 10/28.

†**Oregon** — RAILROAD MATERIAL—B. A. 1/20—U. S. Eng., 19 E. Poplar St., Walla Walla, Wash., furnishing f.o.b. contractor's mill track materials for the Union Pacific R. R. relocation in connection with McNary Dam, Serial No. CIVENG-45-164-50-73.

†**Idaho**—CIRCUIT BREAKERS, etc.—B.A. 1/24—Bureau Reclamation, Dpt. Interior, Bldg. 1-A, Denver Federal Center, Denver, Colo., furnishing, del. f.o.b. cars shipping point or f.o.b. cars, Mountain Home, Idaho, circuit breakers, horn-gap switch, disconnecting switches, lightning arresters, neutral circuit for Mountain Home substation, Boise Proj., Spec. 2862. L. N. McClellan, ch. engr.

†**Montana**—OUTDOOR POWER TRANSFORMER, etc.—B.A. 1/24—Bureau Reclamation, Dpt. Interior, Bldg. 1-A, Denver Federal Center, Denver, Colo., furnishing, del. f.o.b. cars shipping point or f.o.b. cars Coram, Mont., outdoor power transformer, outdoor power circuit breakers, outdoor disconnecting switch, outdoor horn-gap switches, outdoor station-type, lightning arresters, outdoor current transformers, for Hungry Horse Switchyard, Hungry Horse Proj., Spec. 2860, L. N. McClellan, ch. engr.

Calif., San Francisco—MAINTENANCE YARD—B. A. 1/25—Dpt. P. Wks., City Hall, maintenance yard, 2323 Army St. Approx. $50,000. Plans deposit $25. Dodge A. Reidy, City Hall, city archt.

†**Colorado** — CIRCUIT BREAKERS, etc. — B. A. 1/31—Bureau Reclamation, Dpt. Interior, Bldg. 1-A, Denver Federal Center, Denver, furnishing, del. f.o.b. cars shipping point or f.o.b. cars Valmont, circuit breakers, disconnecting switches, grounding blades, disconnecting fuse, expulsion fuse unit Spec. 2873; outdoor transformer, lightning arrester, Spec. 2870, both for Leyner Substation, Colorado Big Thompson Proj. L. N. McClellan, ch. engr.

†**Washington** — RAILWAY RELOCATION — B. A. 1/31—U. S. Eng., 19 E. Poplar St., Walla Walla, relocation 11.6 mi. S. P. & S. Railway from Yellepit Station to Finley.

†**Washington**—RAILROAD RELOCATION—B. A. 1/31—U. S. Eng., 19 East Poplar St., Walla Walla, Wash., 11.6 mi. section Spokane, Portland & Seattle Ry. relocation, incl. roadway grading, grading for shoo-flies, grading for station grounds, grading for an access road, wasting unsuitable foundation materials, constr. pipe and concrete box drainage structures, constr. right-of-way fences between railroad relocation station 6663 plus 00 and railroad station 329 plus 00 and moving existing station bldgs., water tank and appurtenances. Serial No. CIVENG-45-165-50-65.

†**Washington**—TRANSFORMER—B.A. 1/31 Bureau Reclamation, Dpt. Interior, Bldg. 1-A, Denver Federal Center, Denver, Colo., outdoor power transformer for Quincy Pumping Plant Switchyard, Columbia Basin Proj., Spec. 2865. L. N. McClellan, ch. engr.

LOW BIDDERS

†**Montana**—TURBINES—Bureau Reclamation, Dpt. Interior, Bldg. 1A, Denver Federal Center, Denver, Colo., Dec. 13, furnishing, del. f.o.b. cars shipping point or f.o.b. cars Louisville, three 23,500 hp. hydraulic turbines for Canyon Ferry Power Plant, Canyon Ferry Unit, Missouri River Basin Proj., Spec. 2814, from Newport News Shipbuilding & Dry Dock Co., Newport News, Va., **$522,600.** CD 11/14.

†**Oregon—Washington** — RAILROAD RELOCATION—U. S. Eng., 19 E. Poplar St., Walla Walla, Wash., for constructing 14.4 mi. sect. Union Pacific Ry. relocation and 10 mi. sect. U. S. Hys. 730 and 395 from point east of Umatilla, Ore. to Wallula, Wash., CIVENG-45-164-50-46, from Utah Constr. Co., 1 Montgomery St., San Francisco, Calif., **$3,070,709.** Est. $3,219,672. CD 11/7.

Tennessee and Kentucky—RURAL DISTRIBUTION LINES—Tri-County Electric Membership Corp., Lafayette, Dec. 2, 214 mi. rural distr. lines, Clay, Macon, Overton, Sumner and Trousdale counties, Tenn. and Adair, Allen, Cumberland, Monroe and Simpson Counties, Ky., from Roy Richards Constr. Co., Carrollton, Ga. CD 11/21.

Tenn., Chattanooga — SWIMMING POOLS — State of Tennessee, 404 State Office Bldg., Nashville, Dec. 14, swimming pools at Booker T. Washington and Harrison Bay Parks, from Collins & Hobbs, Inc., 4011½ Tennessee Ave., **$118,867.** CD 12/7.

CONTRACTS AWARDED

Ala., Brewton — DRIVE-IN THEATER — Martin Theater Corp., c/o R. E. Bland, archt., Martin Bldg., Columbus, Ga., drive-in theater, day labor. Approx. **$60,000.**

Ala., Greenville — DRIVE-IN THEATER — Martin Theater Corp., c/o R. E. Bland, archt., Martin Bldg., Coumbus, Ga., drive-in theater, day labor. Approx. **$50,000.**

Ark., Russellville—DRIVE-IN TREATRE—E. A. Patton, Fort Smith, 400-car drive-in motion picture theatre, on Hoffman Tract east of city, separate contracts. Approx. **$70,000.**

Fla., St. Petersburg—MOTOR COURT—Frank Barardi, c/o contractor, motor court, to Settecasi & Chillura, 2101 5 Ave., Tampa, Zone 5, Approx. **$85,000.**

Ill., Kewanee—DRIVE-IN THEATRE—**Wanee** Drive-in Theatre c/o Rud Lorenz, **Wanee** Theatre, Kewanee, 400-car drive in motion picture theatre, on Hys. 34 and 78, 1 mi. south of here, separate contracts. **$70,000**

Iowa — WATER LINE — Southwestern Federated Power Co-Operative, Creston, Sect. 12, waterline from City of Creston to power plant, to Dobson Bros. Constr. Co., 809 First National Bank Bldg., Lincoln, Neb., **$55,752.** Bids 12/7. CD 11/28.

North Carolina — PRISON CAMP — State Hy. & P. Wks. Comn., Raleigh, 125 man prison camp 3.5 mi. east of county home near Greensboro, Guilford Co., to W. A. Foster Constr. Co., Burlington, **$91,099.** Est. $100,000. Bids 12/16. CD 12/16.

Ore., Eugene—LUMBER YARD—**Long-Bell** Lumber Co., Eugene, lumber yard unit, own forces. **$75,000.** CD 12/16.

Pa., Phila.—SUBWAY—City Transit Dpt., City Hall Annex, Broad St. Subway alterations, to William A. Bulman, 2944 E. St., **$237,500.** Bids 12/13. Lawrence Costello, c/o owner, transit dir.

Tex., Alice — SWIMMING POOL — Alice Country Club, Alice, rein.-con. swimming pool, to M. L. Allison, Beeville, **$53,345.** Est. $50,000. Bids 10/5. CD 9/30.

Tex., Killeen—LIGHTING SYSTEM—City, Mercury-Vapor street lighting sys. Purchase and Hire. Approx. **$55,000.**

Alta., Lethbridge — DRIVE-IN THEATRE — Western Drive-In Theatres, Ltd., Calgary, drive-in theatre, to Standard Gravel & Surfacing Co., Ltd., 5340 First St., Calgary, **$150,000.**

Proposal Advertisements see pp. 54 to 56

OFFICIAL PROPOSALS

Bids: January 31, 1950 (484)

Livernois Relief Sewer

DEPARTMENT OF PUBLIC WORKS
CITY OF DETROIT, MICHIGAN

CONTRACTS PW-998-1001

Sealed proposals for the construction of the Livernois Relief Sewer located in the City of Detroit, addressed to the Department of Public Works at the City of Detroit, and endorsed: "Proposal for Contracts PW-998-1001" will be received at the office of the Department of Public Works, 104 City Hall, until 2:00 P.M., City of Detroit Time, on January 31, 1950 at which time they will be publicly opened and read aloud. Any proposal received after the above-mentioned time will be returned to the bidder unopened.

The work included consists of approximately 4.9 miles of sewer under Livernois and Dragoon Avenues and rights-of-way, from Joy Road to the Detroit River at Fort Wayne. The greater portion of the sewer is a 10'6" diameter cylindrical tunnel of concrete or brick construction. A comparatively short portion at the river end is a 10'6" x 9'3" reinforced concrete box, constructed in open cut.

The work is separated into four contracts, namely, PW-998, 999, 1000, and 1001. Bidders may bid on any or all of the four contracts, or may submit a combined bid on any combination of the four contracts.

Approximate lineal feet of sewer in each contract is as follows:

PW98	1927
PW-999	8313
PW-1000	6630
PW-1001	8909
Total, approximately	25769 = 4.9 miles, approximately

The Contract Documents, including Notice to Bidders, Form of Proposal and Agreement, Drawings and Specifications may be examined at the office of the City Engineer, 10th floor of the Griswold Building, Detroit, 26, Michigan, during busines hours. The Contract Documents, exclusive of Drawings, for the four contracts are bound in one volume. These may be obtained by making a deposit of $10.00. The set of Drawings for each of the contracts may be obtained by making a deposit of $10.00 for each set. The amount deposited will be refunded upon the return in good condition of the complete set or sets of the Contract Documents, including the Drawings, within one month after receipt of the proposals, or if used in submitting a bona fide proposal.

Each proposal shall be accompanied by a certified check or a satisfactory bidder's bond in an amount not les than 5 percent of total bid price, as security for the acceptance of the Contract.

After the scheduled closing time for receipt of bids, no proposal may be withdrawn for at least 45 days.

The City of Detroit reserves the right to waive any informality in any bid, or to accept any bid, or to reject any or all bids, should it be deemed for its best interests so to do.

CITY OF DETROIT
CARL D. WARNER
Commissioner of Public Works

G. R. THOMPSON
City Engineer

(Continued on page 55)

Official Proposals Columns of

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U. S. Government
Continued from page 54)

MISSOURI RIVER BASIN PROJECT Design Section, Casper, Wyoming, December 13, 1949, Specifications VII-94. NOTICE IS HEREBY GIVEN that sealed bids will be received at Casper, Wyoming, until 10 a.m., Mountain Standard Time, January 17, 1950, and then publicly opened for furnishing and delivering the control and relay board and battery charger for Sidney Substation, Transmission Division, Nebraska, Missouri River Basin Project.
Copies of the standard forms and of the specifications may be obtained from the following offices of the Bureau of Reclamation: A. A. Batson, Regional Director, New Customhouse, Denver, Colorado, and I. J. Matthews, District Manager, Casper, Wyoming. No charge to prospective bidders for copies of the specifications and drawings to others $0.50 per copy, not returnable (483)

U. S. ARMY, CORPS OF ENGINEERS, NEW ENGLAND DIVISION, Army Base, Boston 10, Mass. Inv. No. Eng-19-016-50-5-Sealed bids will be received at this office until 2:00 P.M., January 11, 1950, (NOTE CHANGED BID OPENING DATE), and then publicly opened for Construction of a Veterans Administration Hospital, 500 bed General Medical and 400 bed Tuberculosis, West Haven, Connecticut, in accordance with specifications and plans, copies of which are on file at this office. (435)

UNITED STATES DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Specification No. 2868) will be received by Bureau of Reclamation, Redding, California, until 10 a.m., January 19, 1950, and then publicly opened for furnishing labor and materials and performing all work for the completion of Shasta Power Plant, Central Valley Project, California. The work is situated at Shasta Dam, approximately 10 miles north of Redding, California. Principal items are approximately: 23,000 sq. ft. of terrazzo floors; furnishing and installing 9,000 sq. ft. of asphalt tile and rubber tile; 6,000 sq. yds. of plastering; installing 720 lin. ft. of aluminum handrailing; installing miscellaneous plumbing fixtures; and other work. Time allowed for completion will be 210 days. For particulars, address Bureau of Reclamation, Redding, California; or Building 1-A, Denver Federal Center, Denver, Colorado.
MICHAEL W. STRAUS, Commissioner. (491)

UNITED STATES DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Specifications No. 2867) will be received by Bureau of Reclamation, Elverta, California, January 24, 1950, and then publicly opened for furnishing labor and materials and performing all work for the construction of 230-kilovolt Elverta to Perkins double-circuit transmission line, Central Valley Project, California. The work is situated near Sacramento, California. Principal items are constructing foundations for and erecting steel towers for approximately 18 miles of line; stringing 3 conductors and 2 overhead ground wires; and other work. Time allowed for completion will be 270 to 330 days. For particulars, address Bureau of Reclamation, Elverta, California; or Building 1-A, Denver Federal Center, Denver, Colorado.
MICHAEL W. STRAUS, Commissioner. (489)

U. S. Government

UNITED STATES DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Specifications No. 2871) will be received by Bureau of Reclamation, Denver, Colorado, January 19, 1950, and then publicly opened for furnishing labor and materials and performing all work for the construction of Olympus siphon, station 57+68.97 to station 87+40.00, and access road, Estes Park-Foothills power aqueduct, Colorado-Big Thompson Project, Colorado. The work is situated 22 miles west of Loveland, Colorado. Principal items are approximately: 11,800 cu. yd. excavation, common, for structures; 20,500 cu. yd. excavation, rock, for structures; 1,100 cu. yd. one-course road surfacing; 4,300 cu. yd. concrete in structures; 690,000 lbs. furnishing and placing reinforcement bars; and other work. Time allowed for completion will be 245 days. For particulars, address Bureau of Reclamation, Building 1-A, Denver Federal Center, Denver, Colorado.
MICHAEL W. STRAUS, Commissioner. (490)

UNITED STATES DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Specifications No. 2859) will be received by Bureau of Reclamation, Denver, Colorado, January 18, 1950, and then publicly opened for furnishing labor and materials and performing all work for the construction of completion of Granby Pumping Plant, Colorado-Big Thompson Project, Colorado. The work is situated between Grandby and Grand Lake, Colorado. Principal items are approximately: installing and testing three 200-cfs vertical shaft, centrifugal-type pumps and transporting and installing three 6,000-hp alternating-current pump motors; installing 97,000 lin. ft. various sizes exposed electrical metal conduit, conductors, and power and control cables; furnishing and installing materials for architectural and structural work, and heating and ventilating system; and other work. Time allowed for completion will be 315 days. For particulars, address Bureau of Reclamation, Grand Lake, Colorado; or Building 1-A, Denver Federal Center, Denver, Colorado.
MICHAEL W. STRAUS, Commissioner. (487)

OFFICIAL PROPOSALS

Bids: January 31, 1950 (488)

Water Works Improvements
For The
BOARD OF WATER WORKS TRUSTEES
COUNCIL BLUFFS, IOWA

Sealed proposals will be received at the office of the Council Bluffs City Water Works for:
Contract No. 16—Water Purification Plant
Contract No. 21—25th Street Feeder Main
until 9:30 A.M. Central Standard Time on Tuesday January 31, 1950, at which time proposals will be publicly opened and read aloud.

Contract No. 16 covers the construction of an 8 mgd water purification plant including chemical building, flocculation and clarifier basins, six rapid sand filters and clearwell of 1,500,000 gallon capacity.

Contract No. 21 provides for furnishing and installation of approximately 4,200 feet of 30" and 1,800 feet of 24" high pressure cast iron or prestressed concrete pipe.

Sealed proposals will also be received at the office of the Council Bluffs City Water Works for:
Contract No. 18-R—Pumps
Contract No. 19-R—
Switchgear and Motor Control

OFFICIAL PROPOSALS

until 1:30 P.M. Central Standard Time on Tuesday, January 31, 1950, at which time proposals will be publicly opened and read aloud.

All equipment, material, and labor must be in accordance with the specifications on file with the Board of Water Works Trustess, Council Bluffs, Iowa, and in the office of the Burns & McDonnell Engineering Company, Kansas City, Missouri.

Copies of the Contract Documents desired for biding purposes may be obtained from the Burns & McDonnell Engineering Company P. O. Box 7088, 95th and Troost, Kansas City, Missouri, upon payment of the required deposit for each set of documents, as follows:

Contract No. 16	Deposit $30.00
Contract No. 21	Deposit $10.00
Contract No. 18-R	No deposit required
Contract No. 19-R	No deposit required

The full amount of the deposit for one set only of such documents will be refunded to each actual bidder upon return of plans and other documents, not filed with the proposal, to the Engineers within ten (10) days after the award of the contract. One-half of the deposit will be refunded to all others upon the return of all documents in good condition within ten (10) days after the award of the contract. Portions of the specifications and plans required for subbidders will be furnished at cost with no refund allowed.

Bidders are required to use the printed forms contained in the Contract Documents.

A cetrified check on a solvent bank or a bid bond in an amount equal to five per cent (5%) of the total amount of the bid made payable to the City Treasurer of Council Bluffs, must accompany each proposal.

No bidder may withdraw his bid for a period of thirty (30) days after the date of opening bids.

The Purchaser reserves the right to reject any or all bids and to waive informalities therein to determine which is lowest and best bid, and to approve the bond.

BOARD OF WATER WORKS TRUSTEES
COUNCIL BLUFFS, IOWA
H. C. HARRISON, Chairman
BURNS & McDONNELL
Box 7088
Kansas City, Missouri

Bids: January 9, 1950 (492)

Sewer Construction
WASHINGTON SUBURBAN SANITARY COMMISSION
CONTRACT NO. 243-S

Sealed proposals for constructing the Northeast Branch Trunk Sewer from Lincoln Avenue, Riverdale to Paint Branch, Hyattsville and Berwyn Districts, involving approximately 235 feet of 6-inch, 8-inch and 15-inch sewers, and 5,435 feet of 36-inch RCCP and 2,315 feet of 36-inch RCCPX sewers, will be received at the office of the Washington Suburban Sanitary Commission, Hamilton Street, Hyattsville, Maryland, until Monday, January 9, 1950 at 2:00 P.M., Eastern Standard Time, at which place and time they will be publicly opened and read.

Plans and specifications may be obtained from the office of the Chief Engineer of the Commission, Hyattsville, Maryland, upon deposit of $5.00, which deposit will be returned to bidders or to those returning plans and specifications in good condition.

Dwight B. Galt
Warren Browning
Leland G. Worthington
Commissioners

(Continued on page 56)

OFFICIAL PROPOSALS
(Continued from page 55)

Bids: January 17, 1950 (480)

Downsville Dam and Appurtenant Works

CONTRACT 401

SEALED BIDS will be received by the Board of Water Supply, at its offices, thirteenth floor, 120 Wall Street, New York City, until 11:00 A.M., Eastern Standard Time, on Tuesday, January 17, 1950, for Contract 401, for the completion of the construction of the Downsville dam of the Pepacton reservoir and for the construction of the waste weir, weir channel and waste channel of that reservoir, the release water chamber and tunnel and the appurtenances of all of these structures, together with the closure of the existing diversion tunnel and the final grading in the vicinity of the dam, all as set forth in the specifications. The Downsville dam will be approximately 2,450 feet in length with a maximum height of about 204 feet and will be constructed of earth compacted by rolling. The work is located near the Village of Downsville, Town of Colchester, Delaware county, New York.

No bid will be received and deposited unless accompanied by a certified check upon a National or State bank, drawn and made payable to the order of the Comptroller of The City of New York, in the amount of four hundred thousand dollars ($400,000.00), for the proper execution of the contract.

At the above place and time the bids will be publicly opened and read. Pamphlets containing information for bidders, forms of bid and contract, specifications, contract drawings, requirements as to surety, etc., can be obtained at the office of the Chief Engineer, Room 1311, at the above address, upon application in person or by mail, by depositing the sum of five dollars ($5.00) in cash or its equivalent for each pamphlet. Within 30 days following the award of contract or rejection of bids, the full amount of such deposit shall be refunded for each pamphlet submitted as a bid and a refund of four dollars ($4.00) will be made for each other pamphlet returned in acceptable condition. Arrangements will be made whereby prospective bidders desiring blueprints of the contract drawings for their own use may secure same, the cost thereof to be paid by them. For further particulars, apply at the office of the Chief Engineer at the above address.

IRVING V. A. HUIE, President, HENRY HESTERBERG, RUFUS E. McGAHEN, Commissioners, Board of Water Supply; RICHARD H. BURKE, Secretary.

Bids: January 3, 1950 (479)

Resurfacing Lock Walls

Sealed proposals covering
Contract M-95
For Resurfacing Lock Walls, Lock 7, Erie Canal Town of Niskayuna, Schenectady County, N. Y. Approximate cost of project $129,280.00

will be received by Henry A. Cohen, Director, Bureau of Contracts and Accounts, Department of Public Works, The Governor Alfred E. Smith State Office Building, Albany, N. Y., on behalf of the Department of Public Works, until 10:30 o'clock A.M., Eastern Standard Time on Tuesday, January 3, 1950, when they will be publicly opened and read.

Each proposal must be made upon the form and submitted in the envelope provided therefor and shall be accompanied by a certified check made payable to the State of New York, Commissioner of Taxation and Finance, in the amount of $7,000.00 as a guaranty that the bidder will enter into the contract if it be awarded to him. The title of the work must be written on the front of the envelope, sealed and delivered to Henry A. Cohen, Director, Bureau of Contracts and Accounts, The Governor Alfred E. Smith State Office Building, Albany, N. Y. The blank spaces in the proposal must be filled in, and no change shall be made in the phraseology of the proposal. Proposals that carry any omissions, erasures, alterations or additions may be rejected as informal. Successful bidder will be required to give a bond conditioned for the faithful performance of the contract and a separate bond for the payment of the laborer and material men, each bond in the sum of 100% of the amount of the contract or contracts in excess of $500. Corporations submitting proposals shall be authorized to do business in the State of New York. Drawings and specifications may be examined free of charge at the following offices:

Guy W. Pinck, Deputy Chief Engineer
The Governor Alfred E. Smith State Office Building, Albany, N. Y.
State Architect, 18th Floor, 270 Broadway, New York City
Geo. L. Nickerson, Dist. Engineer, 353 Broadway, Albany, N. Y.

Drawings and specifications may be obtained from the Director, Bureau of Contracts and Accounts, The Governor Alfred E. Smith State Office Bldg., Albany, N. Y. upon deposit of $5.00 for each set.

Refund in full will be made to bidders for one set of plans and specifications returned in good condition within 30 days of award of contract or the rejection of the bids. A 50% reimbursement will be made for the return in good condition of all other sets of the plans and specifications within 30 days following the award of the contract or the rejection of the bids.

Checks for plans and specifications shall be made payable to the State of New York.

Proposal blanks and envelopes will be furnished without charge.

The right is reserved to reject any or all bids.

B. D. TALLAMY, SUPERINTENDENT
N. Y. State Department of Public Works

OFFICIAL PROPOSALS

U. S. Government

U. S. ARMY, CORPS OF ENGINEERS, NEW ENGLAND DIVISION Army Base, Boston 10, Mass. Inv. No. Eng-19-016-50-2. Sealed bids will be received at this office until 2:00 P.M., February 7, 1950, and then publicly opened for Construction of a Veterans Administration Hospital, 1000 bed General Medical, Boston, Massachusetts, in accordance with specifications and plans, copies of which are available at this office. Deposit required of $100.00 per set for blueprints, which will be issued to General Contractors only. $35.00 for half-size reproductions, and $25.00 for specifications, in form of certified check or postal money order payable to "Treasurer of the United States". (481)

U. S. Government

MISSOURI RIVER BASIN PROJECT Design Section, Casper, Wyoming, December 16, 1949. Specifications VII-102. NOTICE IS HEREBY GIVEN that sealed bids on Specifications No. VII-102 will be received at Casper, Wyoming, until 10 a.m., Mountain Standard Time, January 16, 1950, and then publicly opened for furnishing and delivering one bus structure and one transformer structure, including anchor bolts, for the Sidney Substation, Transmission Division, Nebraska, Missouri River Basin Project. Copies of the standard forms and of the specifications may be obtained from the following offices of the Bureau of Reclamation: A. A. Batson, Regional Director, New Customhouse, Denver, Colorado, and I. J. Matthews, District Manager, Casper, Wyoming. No charge to prospective bidders for copies of the specifications and drawings; to others $0.75 per copy, not returnable. (486)

UNITED STATES DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Specifications No. 2863) will be received by Bureau of Reclamation, Superior, Nebraska, January 17, 1950, and then publicly opened for furnishing labor and materials and performing all work for the construction of earthwork and structures, Superior Canal, station 659+68.2 to station 959+80 and station 1029+18.7 to station 1083+00, and earthwork and structures for drains and channel changes, Superior-Courtland Unit, Bostwick Division, Nebraska, Missouri River Basin Project. The work is situated in the vicinity of Superior, Nebraska. Principal items are approximately: 330,200 cu. yds. excavation for canal; 22,500 cu. yds. excavation for structures; 750 cu. yds. concrete in structures; 63,600 lbs. furnishing and placing reinforcement; 3,232 lin. ft. furnishing and laying various sizes precast-concrete pipe; and other work. Time allowed for completion will be 300 days. For particulars, address Bureau of Reclamation, Superior, Nebraska; or Building 1-A, Denver Federal Center, Denver, Colorado.

MICHAEL W. STRAUS, Commissioner. (485)

EMPLOYMENT

REPLIES (Box. No.): Address to office nearest you
NEW YORK: 330 W. 42nd St. (18)
CHICAGO: 520 N. Michigan Ave. (11)
SAN FRANCISCO: 68 Post St. (4)

POSITIONS VACANT

MACHINERY SALESMAN—Excellent opportunity with aggressive company. Complete leading lines except tractors. Must be thoroughly experienced. Boehck Engineering Co., Inc., P. O. Box 12187, Houston Texas.

WANTED: REGISTERED Civil Engineer, Pennsylvania. Concrete or Construction experience, under forty, for position with future. Salary open. P-1470, Engineering News-Record.

WANTED: CIVIL Engineer capable of registering in any Southern State, including Florida. Experience on Natural Gas Distribution Systems preferred. Address: Littrell Engin. & Constr. Co., Inc., Moultrie, Georgia.

CONSTRUCTION SUPERINTENDENT for heavy construction with know how and practical experience who can handle work from estimating to completion. In reply give full qualifications and salary experience. P-1568, Engineering News-Record.

(Continued on the opposite page)

WANTED—CIVIL ENGINEER
Experienced in reinforcing steel design, detailing and estimating. Serve as assistant to and understudy for aging chief engineer. Good starting salary, bonus and excellent opportunity for advancement to chief engineer or manager of our engineering products department. All replies confidential.
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Experienced in preparing placing plans and bending sketches. Excellent opportunity with one of the most progressive Steel Fabricators in the Southeast. Apply, stating age, experience and salary required.
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POSITION AVAILABLE
Civil Engineering graduate with minimum 12 years' experience to supervise project engineers on building work, waste disposal and structural design. Scheduling experience also desirable. Location in East with established chemical company. Furnish detailed resume of experience and education, also salary requirements, in reply.
P-1420, Engineering News-Record
330 West 42nd St., New York 18, N. Y.

WANTED
BRIDGE DESIGNERS,
DESIGNER DRAFTSMEN, RESIDENT HIGHWAY ENGINEERS, SOILS ENGINEER
Experienced men wanted. State qualifications, age, salary and date available in first letter. Construction period, 24 months. Location, Eastern or Western Pennsylvania.
P-1617, Engineering News-Record
330 West 42nd St., New York 18, N. Y.

POSITIONS VACANT
(Continued from the opposite page)

STRUCTURAL DETAILER. Experienced, needed—good opportunity. Address Arkansas Foundry Company, Box 909, Little Rock, Arkansas.

POSITIONS WANTED

R. P. I. Graduate. Building Construction, January 1950. Engineering, transportation, business background. Overseas experience, knowledge French. Age 28, married. PW-1723, Engineering News-Record.

STRUCTURAL ENGINEER. Design, estimating, Structural Steel, Fabrication, Erection. Thoro knowledge building construction especially ornamental, miscellaneous iron and metal building products. Excellent sales record. PW-1594, Engineering News-Record.

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STRUCTURAL ENGINEER—Seeks position as chief engineer or chief draftsman for steel fabricator or supervisory design engineer for consulting or construction firm. Have thorough knowledge of steel fabricating practice, detailing, estimating, design and sales; experienced on design and supervision of industrial plants, institutional buildings, bridges, steel and concrete structures. PW-1743, Engineering News-Record.

GENERAL SUPT. Construction-Project Manager. Graduate Civil-Mech. Engineer, 25 years diversified experience, including estimating; 15 yrs. as general supt.; seven yrs. foreign work, varied projects including refineries industrial-chemical-steam-hydro electric-power and war plants; docks, utilities, airports, highways, railroads, public works, fireproof buildings, mass-housings. Speak, read Spanish, Portuguese, German. A-1 references. Native American. Good health. Available immediately. Foreign assignment preferred. PW-1785, Engineering News-Record.

CONSTRUCTION SUPERINTENDENT. 20 years experience with heavy construction; foundations, industrial buildings, piping, etc. Best references. 42 years old. Available after January 1, 1950. PW-1788, Engineering News-Record.

CIVIL ENGINEER, 29, M. S., Michigan Registration, desires Near East position. Familiar with languages and customs from field experience. Employed at present in responsible design position. PW-1799, Engineering News-Record.

QUANTITY ESTIMATOR. Grad. Civil Engr. Six years experience preparing quantities for priding public, commercial, indust. b'ldngs. PW-1796, Engineering News-Record.

CHIEF ESTIMATOR for General Contractor Available. Experienced all types General Construction. Current volume $60,000,000 per annum. Base salary $12,000 per year. Excellent references. PW-1813, Engineering News-Record.

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MASTER MECHANIC, experienced in the operation and maintenance of all types of heavy equipment and supervision of shops and parts rooms. Foreign or domestic. Available soon. PW-1808, Engineering News-Record.

SELLING OPPORTUNITY WANTED

HONG KONG—CHINESE C.E. leaving for Hong Kong in February will represent firms and consider business connections. RA-1751, Engineering News-Record.

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LINK BELT K-55 2 YARD CRAWLER CRANE, excellent condition, 1948 Buda diesel engine, 60' boom and fair lead. f.o.b. Miami, Florida. $15,000.00.

P&H 255-A TRUCK CRANE, 80' boom, mounted on 10 wheel truck, 18 ton capacity, excellent condition. $10,000.00 f.o.b. Miami, Florida.

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All in good working condition, equipped with LeTourneau equipment.
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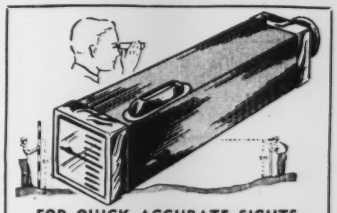
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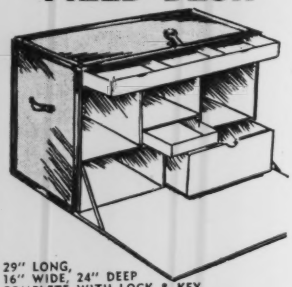

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Model TLP or LP LeTourneau scrapers only for use with Super C Tractor Units.

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One 1½ yd. Lorain Shovel not over 4 years old. Advise price, serial number, condition and location.

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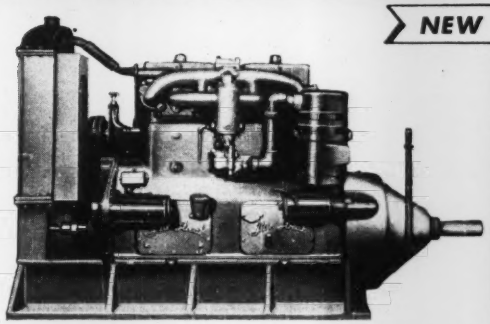

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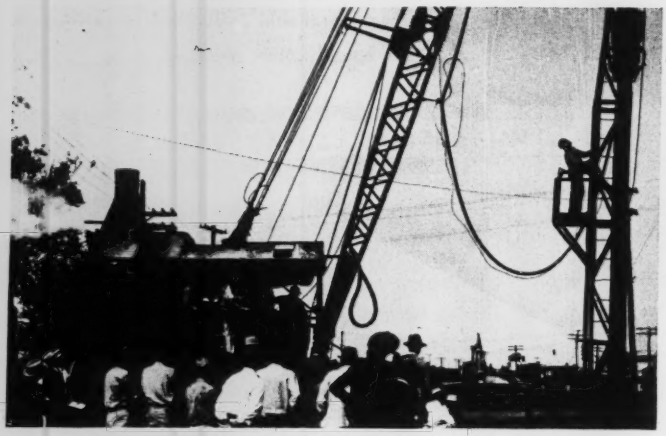
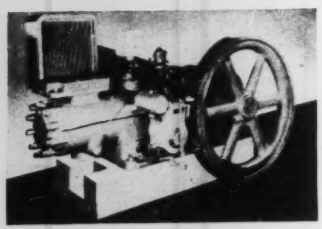


Penetrometer Provides Permanent Record of Pile-Driving Operations

Electronic unit automatically provides a record of all piledriving operations including number of seconds it took to drive the pile, the number of blows, amount of idle time, penetration gained by each blow, and amount of penetration per blow. When calibrated to any particular formula, the Penetrometer shows bearing capacity of pile at each blow; or, if calibrated to a series of test loads, it will show the ultimate resistance of a pile driven in the kind of soil for which the test was made. By making three tapes, one record can be maintained by the contractor, one by the engineer, and one in a permanent file. Unit is quickly attached to pile driver and does not interfere with normal operations. It can be used with any hammer and on any type of pile. Electricity can be provided by any 110-v. circuit, or 8-v. battery and inverter.—A Byron Huncke, Spring Hill, Ala.

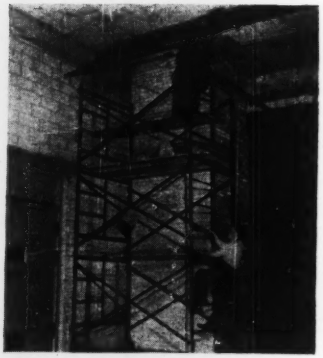


Single-Cylinder Engines

Lorain Model R engine develops 45 bhp. at 325 rpm.; the Model A produces 55 bhp. at the same speed. Both are of the horizontal, single-cylinder two-cycle type. The R operates on natural gas; the Model A can be operated as cold-starting full diesel, or converted to burn natural gas or butane. Conversion is quickly accomplished in the field. Both have tapered roller-bearing crankshafts and auxiliary shafts; and wet-sleeve cylinder liners of alloy cast iron. Overall dimensions are: Length, 110 in.; width, 74 in.; height, 68 in.; and shipping weight, 8,275 lb.—White Roth Machine Corp., Lorain, Ohio.

Medium-Duty Truck Tractor

The Model 650-T truck-tractor is powered by a 6-cylinder engine rated at 140 hp. at a governed speed of 2,600 rpm. Maximum torque is 338 lb./ft. It has a heavy-duty 14-in. dry-plate Clark 5-speed transmission, with helical constant-mesh 2nd, 3rd, and 5th gears. It is geared for road speeds of 60 mph. in overdrive, but company engineers recommend a cruising speed of 55. Total chassis weight including cab is approximately 8,000 lb. of which 3,400 lb. is at the rear wheels. The safety-steel cab is 64-in. wide. A sleeper-type cab is available.—Diamond T Motor Car Co., 4401 W. 26th St., Chicago 23, Ill.

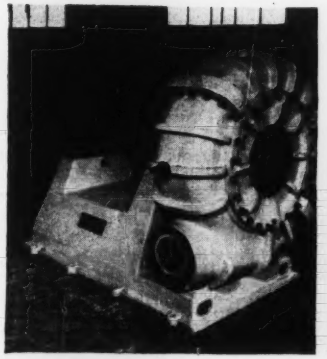


Sectional Scaffolding

Tubular-steel sectional scaffolding features a positive gravity locking device designed to cut erection and dismantling time by over 50 percent. Features include maximum safety, elimination of the small, easily lost parts, and variety of working heights on any one section. Standard end frames are 5 ft. wide and are available in a variety of heights. The Waco locking device is attached to the section and can never become lost.—Wilson-Albrecht Co., Inc., 3565 Wooddale Ave., Minneapolis 16, Minn.

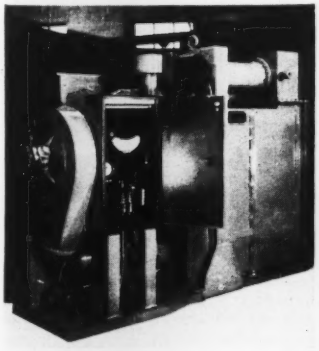
One-Use Rock-Drilling Bit

The Spiralock rock-drilling bit has been designed for use where bit reconditioning is impractical or undesirable. Features include: Ease of putting on and taking off; square socket spirals slightly as it recedes forming the Spiralock union which prevents the bit coming off in the hole; non-choking back face is scalloped and rounded off to prevent chips packing behind the bit; non-rifling; simplifies preparation of drill steel; can be used with any drill steel; crowned chisel pilot for easier starting and centering; and made of Timken electric furnace steel.—The Timken Roller Bearing Co., Canton 6, Ohio.



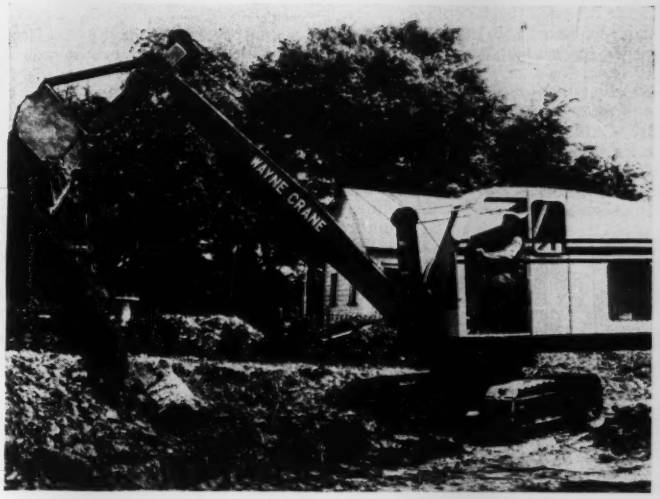
Solids-Handling Pump

High efficiency and long life are features claimed for solids-handling pump designed for use in dredging, mining, and sand-and-gravel operations. The Thomas pump is made of a comparatively nonductile, but extremely abrasion resistant material. Floating suction seal prevents the flow of abrasive laden liquids between the impeller and side liners. The pump is manufactured in a full range of sizes up to and including 16-in. Complete information may be obtained from.—Thomas Foundries, Inc., 3800 Tenth Ave., N. Birmingham 1, Ala.



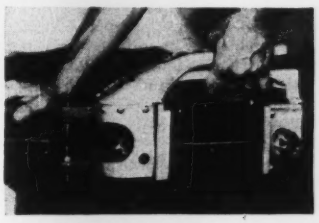
Heated Air Generators

Thag line of heated-air generators are available in two standard models, portable and stationary. They are capable of producing a steady supply of air with temperatures up to 600-deg. F. at 1,000 cfm. for drying or unfreezing wet sand or gravel, defrosting ice-covered machinery, and similar applications. The Model-P, Type A unit weighs 2,250 lb. and is equipped with its own fuel tank and handling gear for mobile use. The Model S, Type A weighs 2,110 lb., and is similar to the Model P with the exception that it has no fuel tank or lifting gear.—Todd Shipyard Corp., 81-16 Forty-Fifth Ave., Elmhurst, Queens, L. I., N. Y.



Half-Yard Crawler-Mounted Excavator Features Sturdy Construction

Weighing more than 15 tons as a trench hoe, the Model 66 half-yard crawler-mounted excavator is easily convertible to shovel, dragline, clamshell, magnet, or 7½-ton utility crane. Crawler assembly is powered through a direct-drive propeller shaft assembly from the direct-power-flow transmission. Bearing length of the crawler is 8 ft. 5 in. and width is 8 ft., making for stable 360-deg. operations. Features include: Either a worm-driven or live boom hoist; unit replacement of all subassemblies; built-in counterweight to reduce read-end clearance of cab; 15-in.-dia. drums; and anti-friction bearings throughout. Base plate is held by adjustable conical hook rollers which revolve around a 48-in.-dia. ball bearing. Travel, lift, boom, and swing can be operated simultaneously or independently. Swing speed is 6.2 rpm. —Wayne Crane Division, Fort Wayne 1, Ind.



Portable Spot Welder

Lightweight spot welder (22 lb.) is completely one-hand-operated. The 110-v. units weld two sheets of any weldable steel 20 to 18 gage, galvanized iron, Monel and Hoskins alloys, and stainless steel 2 gages thicker. The 220-v. unit welds up to a ⅛-in. thickness. The Big Shot modulator permits adjustment for varying power currents. Upper tong of the welder is fixed, while the lower tong moves. This permits placing the top tong on the exact spot to be welded. Tongs have a square shape to prevent twisting out of position. Tool & Equipment Distributors, 636 S. Tenth Ave., La Grange, Ill.

Lightweight Conveyor

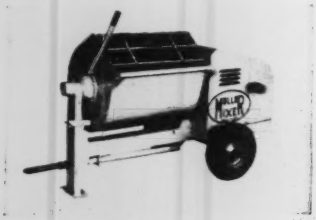
Constructed of 61ST6 aluminum alloy, the Handy-Handler weighs but 119 lb. for its lightest model. The conveyor is available in lengths from 10 to 20 ft., and can be equipped with any of three electric motors or three gasoline engines. Can be supplied with rubber flights and continuous rubber belt, or steel flights and chain.—Belt Corp., Orient, Ohio.

All-Steel Jaw Crushed

Large, deep-frame jaw crusher measures 66x84-in. and has three-piece side frames. Features include deep-frame construction, long swing jaws which

(Continued on next page)

permit fast crushing to small sizes, newly designed toggles with renewable flame-hardened ends, and specially designed rod-type pitman. It is designed to close down to 8 in. and will produce, at this setting, approximately 400 tons/hr. Total weight is 578,000 lb. Crusher is driven by flat V-belt drive from a 300-hp. 600-rpm. motor. Crusher speed is 89 rpm.—Birdsboro Steel Foundry & Machine Co., Birdsboro, Pa.



Plaster and Mortar Mixer

Three-cubic-foot plaster and mortar mixer is powered by a Model 9-R-6 Briggs and Stratton air-cooled gasoline engine through a roller chain and machine-cut gears. It has a 32-in. charging height, and a 29½-in. width. Engine house is split for accessibility to driving mechanism. Tires are 4.00x8 on disk wheels with roller bearings. Also supplied with a 1-hp. electric motor.—Muller Machinery Co., Inc., Metuchen, N. J.

Breakaway Coupling

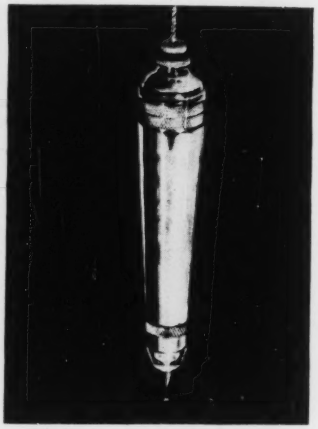
Hydraulic coupling automatically seals hose ends before the connection is broken. It is easily installed on tractors or road equipment without the use of tools, chains, or brackets. The Safety Breakaway coupling can be reconnected by hand against pressures up to 1,500 lb. Affords unrestricted flow in ⅜, ½, ¾, and 1-in. hose sizes.—Hudlen Hydraulic Co., 1138 Chico Ave., El Monte, Calif.

Half-Yard Power Shovel

Production has begun on a half-yard "Quick-Way" power shovel. Equipped with a heavy-duty 30-ft. folding-type boom, the Model L has a 10-ton lifting capacity as a crane unit, and is easily converted to a trench-hoe, dragline, or clamshell. Power is provided by an International U-9 engine developing 55 bhp. Machine weighs 12,000 lb. Standard equipment includes: Drum lagging, hold-in clutch levels, and a combination power trip and automatic tagline winder. Boom extensions are available in 5, 10, and 20-ft. lengths.—"Quick-Way" Truck Shovel Co., 2400 E. 40th Ave., Denver, Colo.

Rust Preventive

Rustarest No. 30 can be used on aluminum, chrome, and ferrous or non-ferrous metals. It produces a hard, tough coating, but is pliable enough to take bending and curving. —International Rustproof Corp., 12507 Plover Avenue, Cleveland, Ohio.



Plumb Bob Lights Point

Pin-point illuminated plumb bob contains a 3-volt pin-type magnifying lens bulb and two pin-type batteries. Turning a screw at the top of the bob provides a small spot of light over the surface to be plumbed.—Illuminated Plumb Bob Co., 2521 Third St., N.W., Washington, D. C.

Thread-Sealing Compound

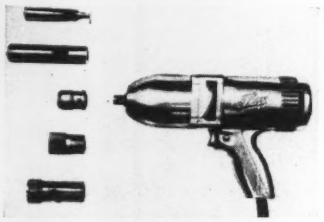
Available in stick form, Thread-Tite applied to pipe threads before joints are made up provides a positive seal against water, steam, and other materials at high and low pressures and temperatures. It also protects threads from seizing or galling, and permits drawing joints, bolts, and studs tighter than is normally possible.—Armite Laboratories, 6609 Broad St., Los Angeles 1, Calif.

Medium-Duty Motor Grader

Galion Model 303 is medium-duty motor grader for maintenance or construction. It can be supplied with either gasoline or diesel engine—both of which develop 45 hp. at 1,600 rpm. Special feature is a choice of all-gear four-wheel tandem drive or single drive. Grader can be obtained with manual or hydraulic booster steering. All operations of blade, scarifier, and leaning front wheels are completely hydraulic. Blade is adjustable 360 deg. horizontally for operation in reverse, and 90-deg. vertically for bank cutting. Weights, without scarifier, are from 13,145 lb. (tandem drive), or 11,400 lb. (single drive), and up. Tire sizes vary according to drive and service requirements. — The Galion Iron Works & Mfg. Co., Galion, Ohio.

Air-Operated Paint Pump

Paintmaster pump permits spraying of paint directly from its original container. Two sizes are available—for 5-gal. pails, and 55-gal. drums. The Paintmaster maintains density of color and retains viscosity of paint at all times by means of continuous agitation and by a circulating system.—Gray Co., Inc., Graco Square, Minneapolis 13, Minn.



Electric Impact Wrench

Versatile Thor ¾-inch electric impact wrench weighs slightly over 6 pounds. It has three speeds, forward or reverse, and strikes 2,000 blows per minute. Drives nuts, bolts, cap screws, and removes broken studs (using Ezy-Out extractor). Drills holes up to ¾-inch diameter in masonry with carbide-tipped drills. Operates on ac/dc circuits. — Independent Pneumatic Tool Co., Aurora, Ill.

Electric-Driven Gearless Pump

Close-coupled gearless pumps are available with ¼, ⅓, or ½-hp electric motors as power units. The Eco multi-purpose pumps have a wide range of uses from simple circulation work up to heavy duty against 150 pounds of pressure. They are available with ¼, ⅜, ½, and ¾-inch ports.—Eco Engineering Co., 12 New York Ave., Newark 1, N. J.

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Manufacturers' Publications

Pressure-Vessel Accessories—Engineering data and specification details on pressure-vessel accessories are included in 64-p. Catalog 9-49. Items listed include welding necks, manways, nozzles, covers, rings, studding outlets, saddles, fittings, and other press-formed specialties. Data cover dimensions, pressure ratings, code specifications, construction details, and service recommendations. Also included is a handbook reference section of technical information.—Lenape Hydraulic Pressing & Forging Co., P. O. Box 179, West Chester, Pa.

Ball and Roller Bearings—Detailed catalog and engineering data book covers line of ball and roller bearings. Book 2550 lists important construction features; prices, weights, load ratings, and important dimensions; how to select the proper bearing; interchangeability of Series DE roller bearings with bearings of other makes; and other important data. Other sections of the book are devoted to welded steel base plates, lubrication fitting data, maintenance and lubrication, shafting, and manufacturing facilities.—Link-Belt Co., 307 N. Michigan Ave., Chicago 1, Ill.

Pipe and Cable Detector—Electronic equipment for detecting buried cable and pipe is listed on a new data sheet. This sheet features an illustrated description of how the equipment is used on a wide variety of jobs, such as locating metallic hazards in the path of excavators, start of street or field surveys, etc. The sheet also contains prices and brief descriptions of the various M-scope equipment.—M-Scope Servi-Sales, P. O. Box 583, San Jose, Calif.

Hydro-Drill Jibs—New bulletin describes the Joy Hydro drill jib—a mounting to carry standard rock drills on either regular drill feeds or on long chain feeds. Bulletin illustrates and describes the jib in use on trucks and on tunnel jumbos. Also described, is use of jib in drilling holes for highway mud-jacking or sub-sealing.—Joy Mfg. Co., Henry W. Oliver Bldg., Pittsburgh 22, Pa.

Paving Breaker—Air-operated Model RC-80 paving breaker is described in detail in Bulletin RC-949. Feature of bulletin is a cutaway drawing showing the component parts of the breaker. Photographs show the tool in use, text describes its principal features of operation, and a condensed specifications table lists its principal dimensions.—Cleco Division, Reed Roller Bit Co., P. O. Box 2119, Houston 1, Tex.

Vitrified-Clay Liner Plates—Installation of vitrified-clay liner plates is explained in 6-p. pamphlet. Detailed descriptions are provided for joining, bonding, and anchoring of clay liner plates for concrete pipe and masonry sewers, drains, sewage-treatment tanks, and other projects.—The Robinson Clay Product Co., 65 W. State St., Akron 9, Ohio.

Fastening Specialties—Manual (28 pp.) contains full descriptive and engineering data on a broad range of blind rivets, anchor nuts, panel fasteners, door-retaining springs, and other newly-developed fastening devices.—South Chester Corp., Finance Bldg., Philadelphia 2, Pa.

Wellpoint Systems—Dewatering equipment for use on various types of construction projects are described in detail in 64-p. catalog. Equipment listed includes wellpoints, pumps, parts, and fittings. Feature of the catalog is a series of large on-the-job photographs showing Moretrench equipment in use on various projects. Accompanying these photographs is a general description of the job and the particular problems each presented.—Moretrench Corp., 90 West St., New York 6, N. Y.

Silent-Chain Drives—New catalog serves as a guide for selection of the proper silent chain and chain drives for a particular application. Selection consists of three steps. (1) Apply the Service Factor to obtain required horsepower rating; (2) refer to selection table meeting the hp. rating and driver speed; and (3) locate the nearest rpm. rating under driven speed and note the proper stock-drive number of the chain drive in the tables.—Whitney Chain & Mfg. Co., 222 Hamilton St., Hartford 2, Conn.

Corrosion-Inhibitive Paints—Several of the latest-type corrosion-inhibitive paint formulations for the protection of iron and steel are included in Red Lead Technical Letter No. 4. Detailed formulations of high-performance synthetic vehicle paints are presented for marine atmospheres, intermittent salt water immersion, and continuous salt-water submersion.—Lead Industries Assn., 420 Lexington Ave., New York 17, N. Y.

READER COMMENT

Beam-Design Shortcut

Sir: Here is a suggestion for improving the method given by C. A. Martin in ENR Nov. 17, p. 46, which represents a very useful development of the American Institute of Steel Construction formula for the design of rolled beams with an unsupported compression flange: If the length L is expressed in feet, the denominator of the fraction becomes 1,000,000 instead of 12,000,000 which simplifies the arithmetical operation.

In the absence of the table published, the writer has found very convenient the equation $S = MLK/1{,}000{,}000$, where $K = d/bt$ is given for all rolled beams in the tables on pages 175 to 195 in the AISC MANUAL OF STEEL CONSTRUCTION, 1947 edition. It requires an assumption of a beam, but the work involved is so quickly performed that this is no great disadvantage. In the writer's experience, it has seldom been necessary to make more than a second such assumption to obtain the best solution in a given case.

FRANCIS P. WITMER
Prospect Park, Pa.

Prestressing Course Wanted

Sir: Much has been written about broadening college curricula to include new and important engineering subjects, to provide more comprehensive engineering tools. And of course, the hue and cry of what will they replace, or shall they be included in the curriculum at the expense of some design course, is often heard. What will be done about prestressed concrete—a virtually unexplored engineering material, new in the sense of present day usage, but old in the sense of material, which can and should be made available as part of the present concrete engineering course?

The design is simple, and in some instances, such as continuous beams with equal spans, is easier to compute than ordinary reinforced concrete. Conventional procedures as practiced with other homogeneous materials, can be used in the design work. It can replace the present conventional structural steel frame and concrete slab construction, in many instances, with a definite reduction of dead load, especially relative to steel-frame stone-concrete fireproofing. And of course, it lends itself to longer spans between columns or supports, with subsequent decrease in member depths compared with present reinforced concrete construction.

However, we must bear in mind, much research still must be done with prestressed concrete, principally determination of stress distribution, creep, fire resistance, high-early strength concrete, and fatigue.

With some research work, a list of possible lecturers to give the material the needed momentum can be found in the country, and with not too much proding, colleges and universities may avail themselves of these qualified instructors. Or teachers may themselves check into the bibliography on prestressed concrete published by the Engineering Societies Library of New York or that published by the Cement and Concrete Association of London, and the books by Magnel, Abeles and Billig—all in the English language.

I realize that economic conditions in this country, especially the availability of steel (which prestressed concrete tends to displace) makes the task a trying, and on the surface, an insurmountable one. But many engineers-to-be will find that prestressing lends itself to many uses, and it should be at their disposal to use when and where practical.

MARTIN MAHLER
Structural Designer
Union, N. J.

Owner Likes Sewage Plant

Sir: As the owner of the Triangle Properties, Inc., I was much interested in R. W. Simpson's article "Compact Sewage Plant for 160 People" in the Nov. 3 issue of ENR. This plant is a part of a FHA Title 608 project completed and fully occupied on April 1, 1948.

Effluent discharges into a small stream running through the Marine Reservation at Quantico, Va. before discharging into the Potomac River. During periods of dry-weather, this stream has as little as 10-gpm flow. It was necessary, therefore, to choose a type of plant which would consistently give the highest BOD removal.

The plant is located within 90 ft. of the nearest occupied area. This location indicated that plant should be free of objectionable odors and flies.

During the twenty months of operation, the plant has met all demands made upon it, and I am thoroughly satisfied with it. It has attracted considerable attention, and engineers from many states have inspected it.

In the operating period, the plant has functioned as originally laid out, with one exception: The bar screen at the plant entrance has been removed.

In the near future a set of automatic controls will be added to actuate discharge of settled solids to the digester automatically at night. This will cut down operator time and further reduce possibility of odor.

Original cost of the plant was about $75 per person of capacity. This was probably high due to small-project size and unfamiliarity of contractors with the type of construction. Similar plants in this area have cost from $30 to $40 for 3,000-persons and up.

The plant is operated by the apartment-house janitor, a young man of average high-school education. He was instructed in the duties of the work by L. B. Griffith, contact-aeration specialist, and it takes about an hour of his time, half in the morning and half in the evening, for this work. This is spent in actuating lift devices, checking pumps and compressors, and more largely simply in keeping the area clean with a hose. His time is not charged to the operation, as he lives, and is in constant attendance, at the project.

The only direct operating costs are: electric current, estimated at $40 per month; chlorine, about $1.50 per month; and maintenance and repair, which to date has averaged less than $1.00 per month. Electric-power consumption is the largest item and would probably be the same for a plant of ten times the capacity, as most of the current is taken by air compressors which would serve that additional capacity.

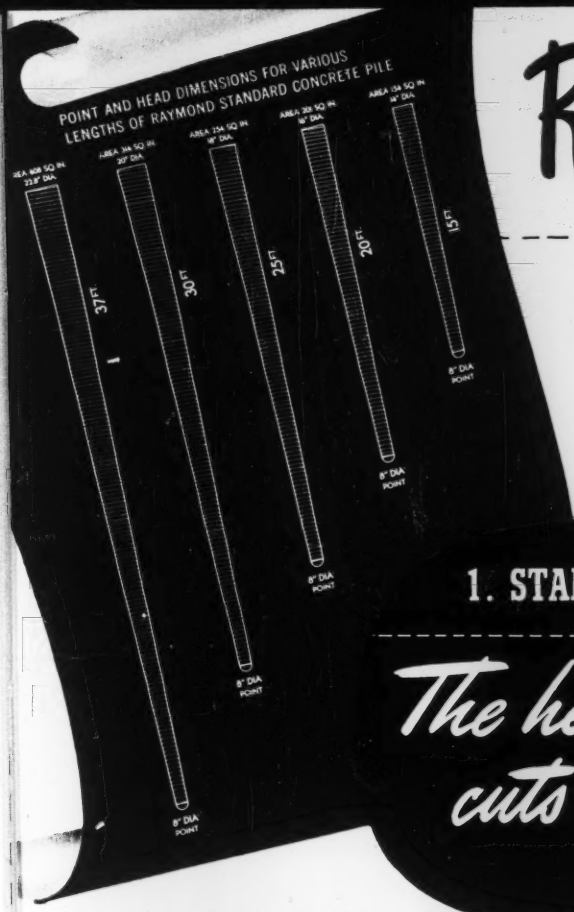
From the standpoint of the owner, we are satisfied with the plant for these reasons:

1. Complete freedom from odors and flies.
2. Continuous high treatment of effluent.
3. Continuing active interest in the project on the part of the designers, consulting engineers, the Virginia State Department of Health, and others, which has resulted in much mutual co-operation.

E. D. GOTHWAITE
Gothwaite Construction Co.
Manassas, Va.

Amplification

Warren S. Dennison, painting superintendent for Schriber Decorating Co., 615 Third Street, N.E., Washington, D. C., designed the hanging scaffold used in redecoration of the U. S. Capitol rotunda (ENR Dec. 8, p. 27). The Schriber company says the scaffold saves "thousands of dollars," adds that conventional scaffold costs have prohibited the job since 1906.


POINT AND HEAD DIMENSIONS FOR VARIOUS LENGTHS OF RAYMOND STANDARD CONCRETE PILE
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AREA 346 SQ IN 20" DIA
AREA 254 SQ IN 18" DIA
AREA 201 SQ IN 16" DIA
AREA 134 SQ IN 14" DIA
37 FT
30 FT
25 FT
20 FT
15 FT
8" DIA POINT

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The heavy taper cuts costs...

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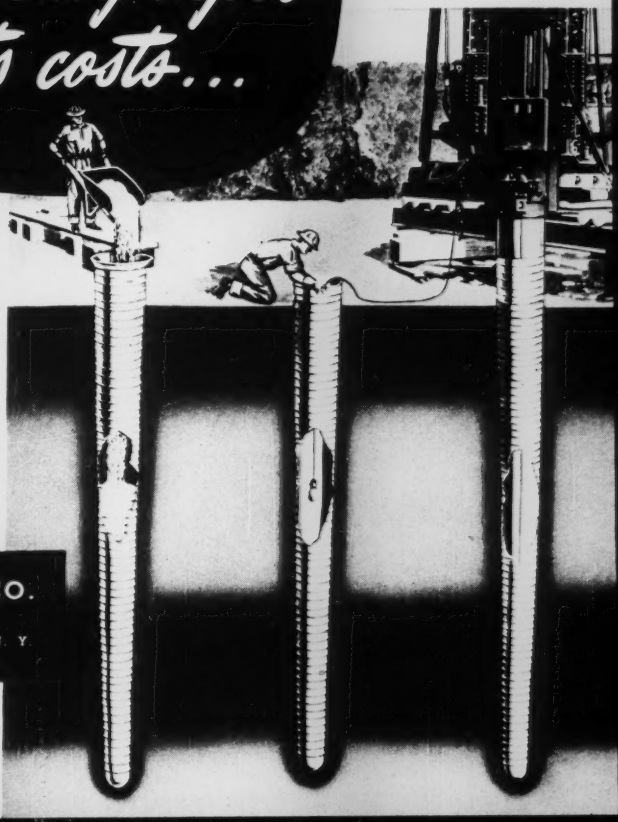

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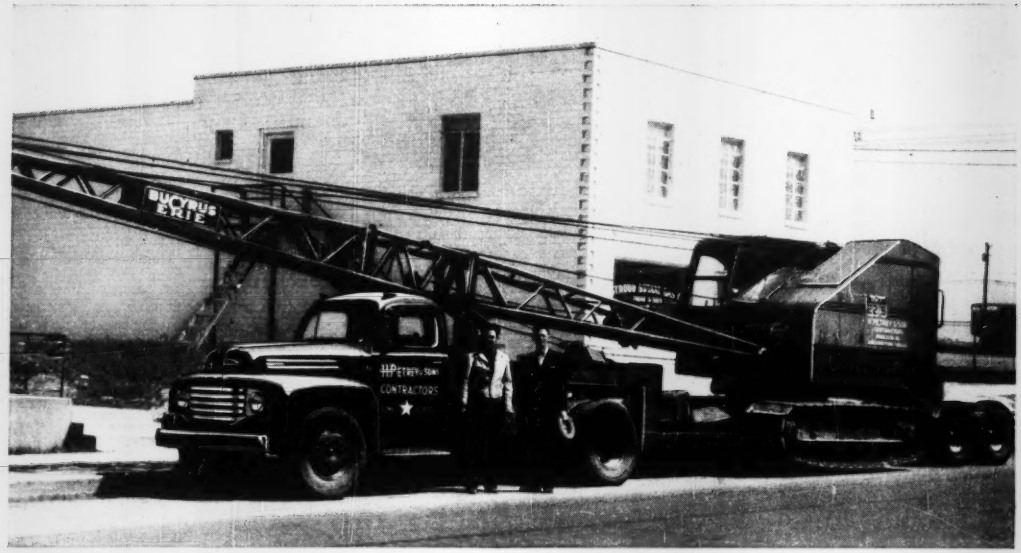

ROADSIDE REPORT *by H. Petrey of Arlington, Texas. Ford Model F-8 shown has a G.T.W. rating of 39,000 lbs. as a tractor. G.V.W. rating is 21,500 lbs.*

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- ★ New heavy duty 5-speed transmissions—overdrive or direct-in-fifth—for operating flexibility.
- ★ Ford Super Quadrax single speed axles; two-speed axle available in Model F-8.
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- ★ Nationwide service from over 6,400 Ford Dealers.
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